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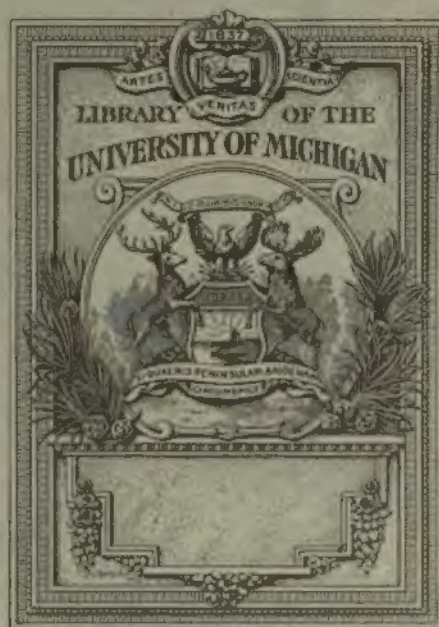
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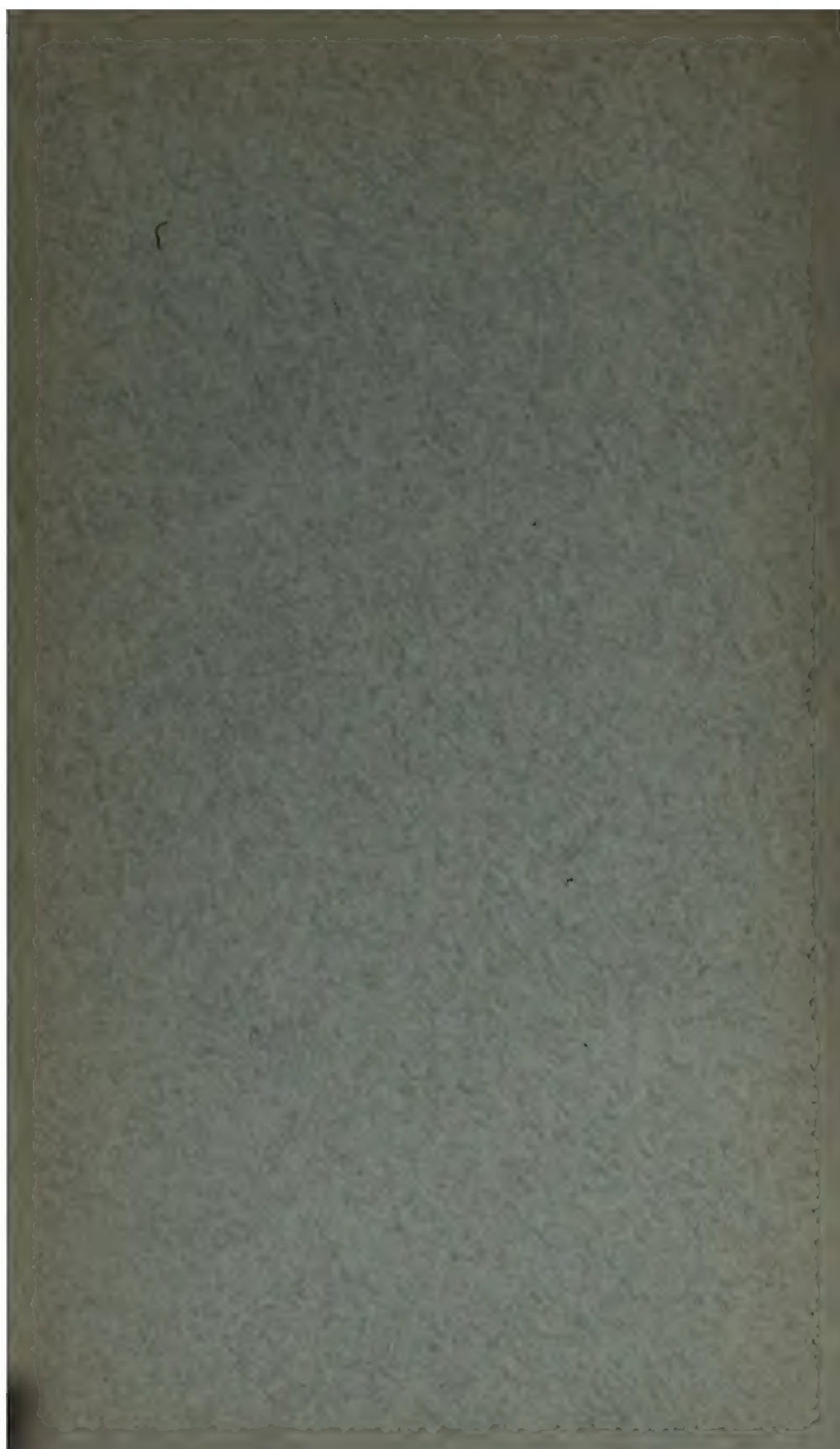
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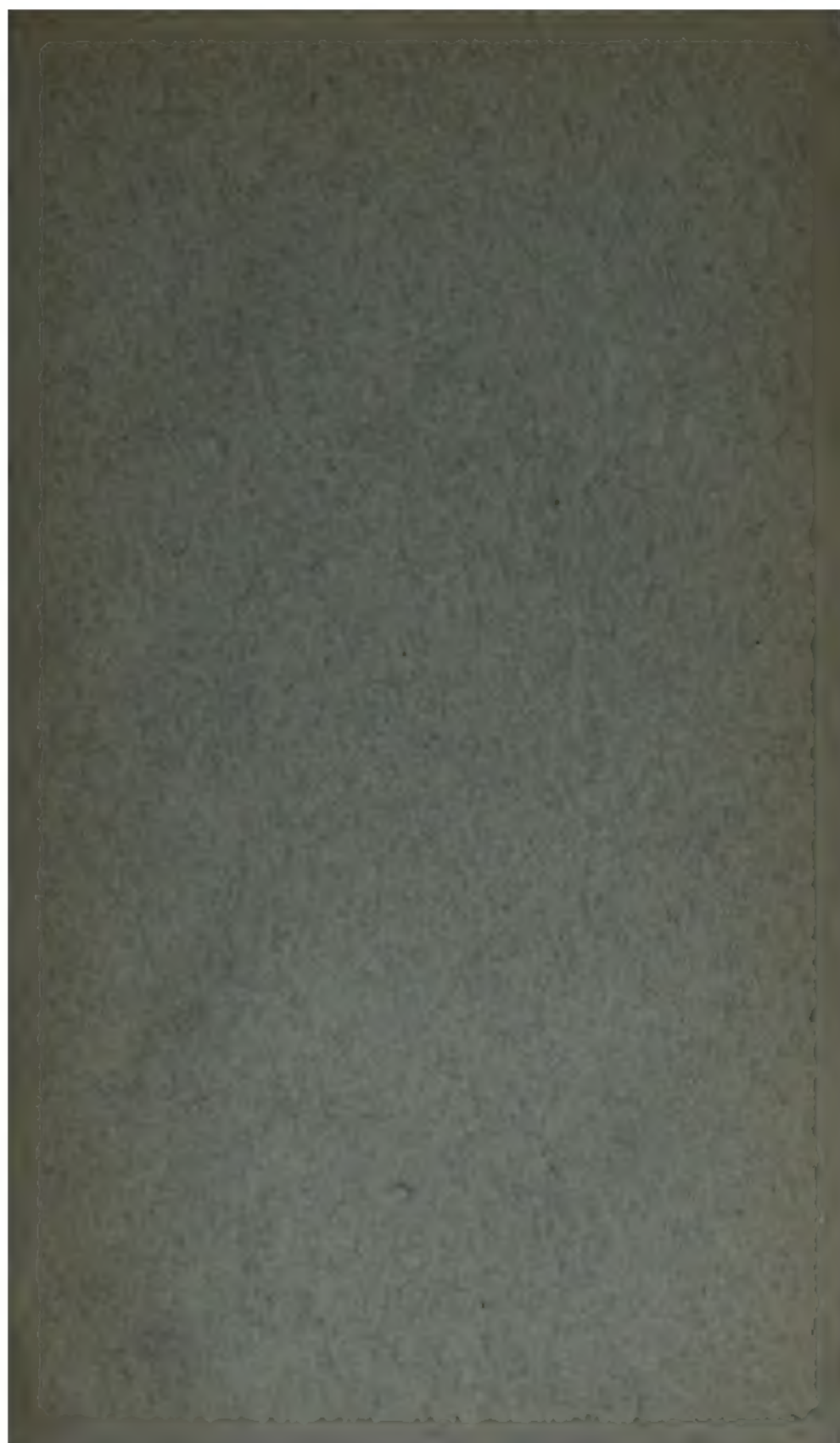
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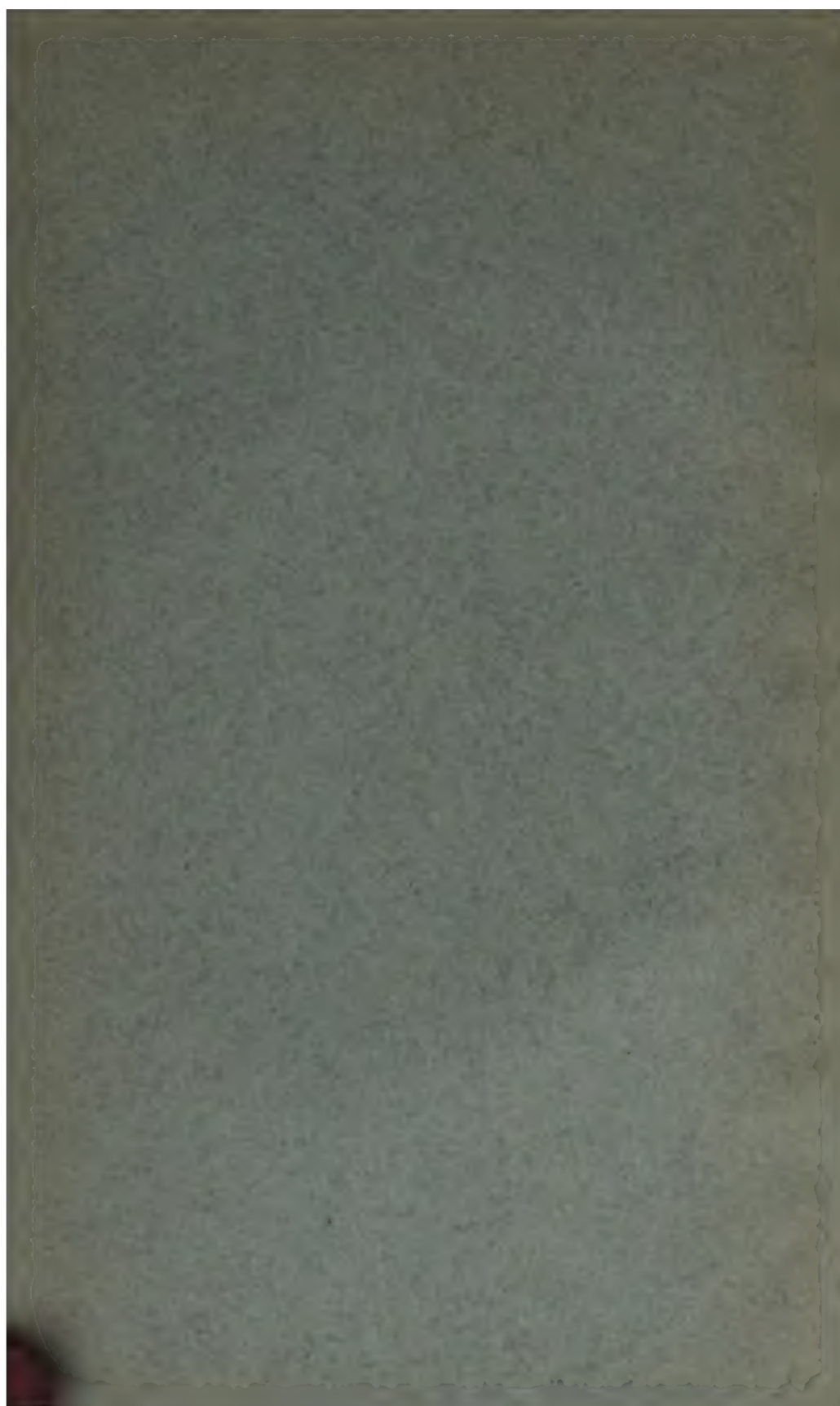
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APPALACHIA

THE JOURNAL OF

THE APPALACHIAN MOUNTAIN CLUB

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APPALACHIA VOL. 3

STATE



LAKE O'HARA (Canadian Rockies)

100 ft. 100 ft.

APPENDIX

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

Flow of Glutamate and GABA Synthesis

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It is evident that a glacier cannot be in equilibrium with a reservoir unless the latter is exactly equal in area to the area of the glacier in its *thinnest* position. A reservoir must exactly equal the area of the glacier in order to fill it the reservoir into the deep. The area of the reservoir must equal the quantity of ice contained in the glacier, the surface of the latter. It is only when the area of the reservoir and the glacier can truly be in equilibrium, that we know the average thickness



APPALACHIA.

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No. 1.

The Flow of Glaciers and their Stratification.

BY HARRY FIELDING REID,

Member of the American Alpine Club.

THE general phenomena of glaciers are pretty well known to all lovers of mountains. It is broadly understood that a glacier is formed by the accumulation of snow in the reservoir; that this snow, transformed into ice, flows down the valley and is gradually melted away in the dissipator; but there are many interesting relations between accumulation, flow, and melting that are not so clearly understood. To develop these relations, we must resort to a device frequently used in science; we must form the conception of an ideal glacier having the properties of real glaciers but without the peculiar accidents or varying conditions to which the latter are subjected. Actual glaciers are continually undergoing variations; they grow larger and they grow smaller, but in the course of centuries their average size may not materially alter. We will picture to ourselves an ideal glacier which does not change its size nor its shape, and we will see what relations we can develop between its different parts. In real glaciers, practically the same relations will exist, but they will be slightly modified by the slow changes which are continually occurring.

It is evident that in our ideal glacier, which we will speak of as a glacier *in equilibrium*, the annual accumulation of snow in the reservoir must exactly equal the quantity of ice flowing out of the reservoir into the dissipator, and this quantity must exactly equal the quantity of ice annually melted from the surface of the latter. It is only when this relation exists that our glacier can truly be in equilibrium. If we knew the average thickness

of the annual accumulation in the reservoir and the average thickness of the ice annually melted from the dissipator, we could determine the relative sizes of these two parts of the glacier. In actual glaciers, the area of the reservoir varies from one or two up to eight or ten times the area of the dissipator. Glaciers whose dissipators are protected from rapid melting by being covered with moraine, or by their beds being at a rather high level, have relatively large dissipators, that is, the above ratio is small. Whereas glaciers which break off at a cliff or at tidewater, or those which plunge suddenly to low altitudes where the melting is rapid, have small dissipators, and the ratio is high. The value of the ratio for glaciers not having any marked peculiarities usually lies between three and four.

We can go further and apply these ideas not only to the glacier as a whole, but to each point in detail. If the glacier is to retain its shape and size unmodified, then at every point in the reservoir the ice must sink down enough to make room for the new accumulation of the year; at every point of the dissipator the ice must flow toward the surface, in order to take the place of the ice which has been melted. At the *névé* line, where there is neither accumulation nor melting, the movement must be parallel to the surface. The further we go up into the reservoir the greater must be the amount of sinking, and the further we go down the dissipator the greater must be the movement of the ice toward the surface. We can, therefore, draw at every point of the surface the approximate direction of the movement of the ice, and by connecting these short lines in a way which is perfectly evident we can get a very fair approximation to the real movement of the ice in all parts of the glacier. These lines are shown in Figure 1, and we see that to every point in the reservoir corresponds a point in the dissipator, they being the beginning and the ending of a line of flow. Snow is deposited at the beginning of a line of flow; as ice it moves through the interior of the glacier and reaches the surface again at the end of the line. The glacier, therefore, is not merely a mass of ice flowing down the valley and slowly melting away, but may be looked upon almost as an organism with its different parts closely related to each other. It would be extremely interesting if for some particular glacier, the corre-

sponding origins and ends of the lines of flow could be accurately determined from the observation. The method of finding these points would be to place marked objects in various parts of the reservoir and to determine in future years where they reappear at the surface of the dissipator; but, unfortunately, the very slow movement of the ice would make an experiment of this

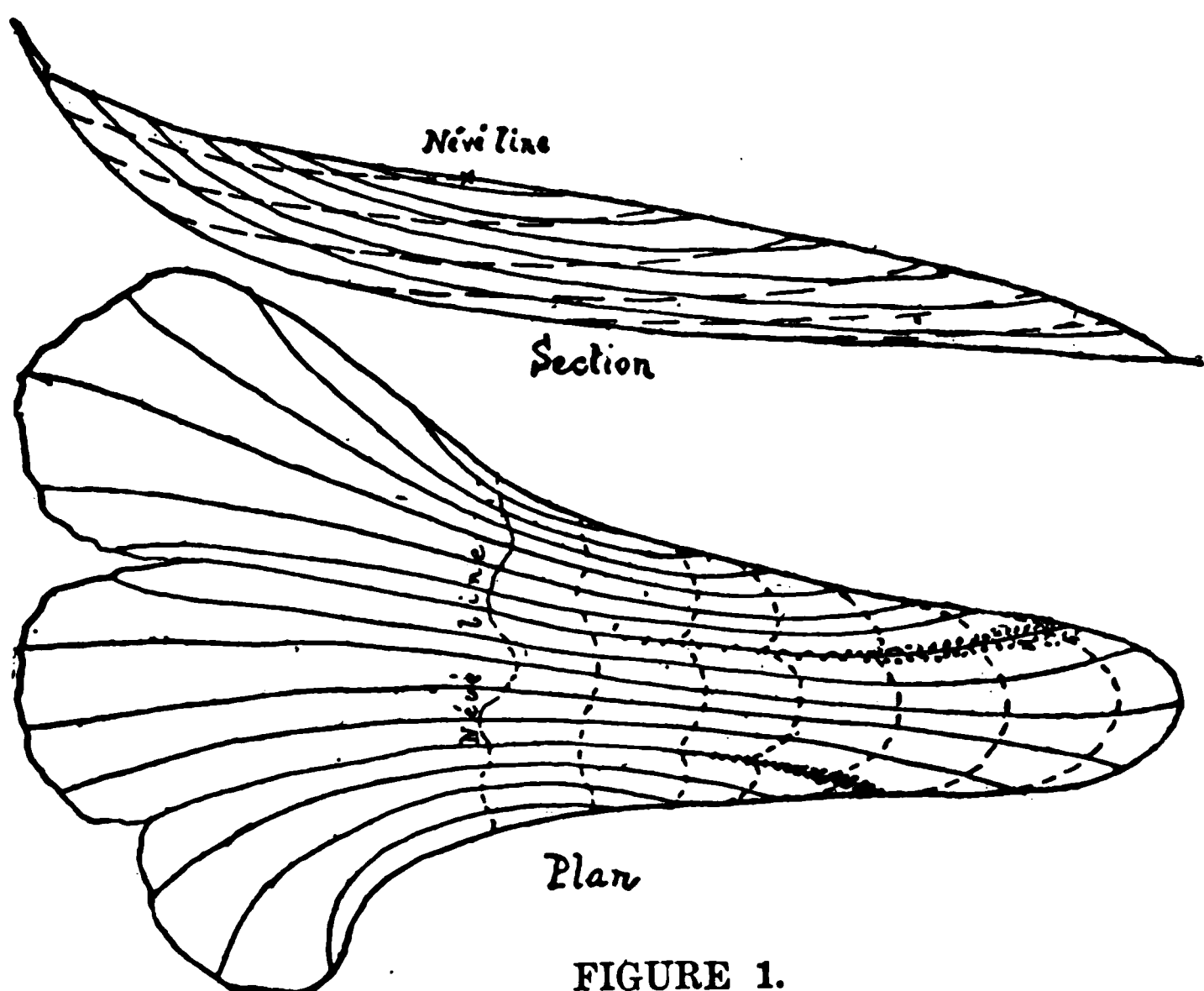
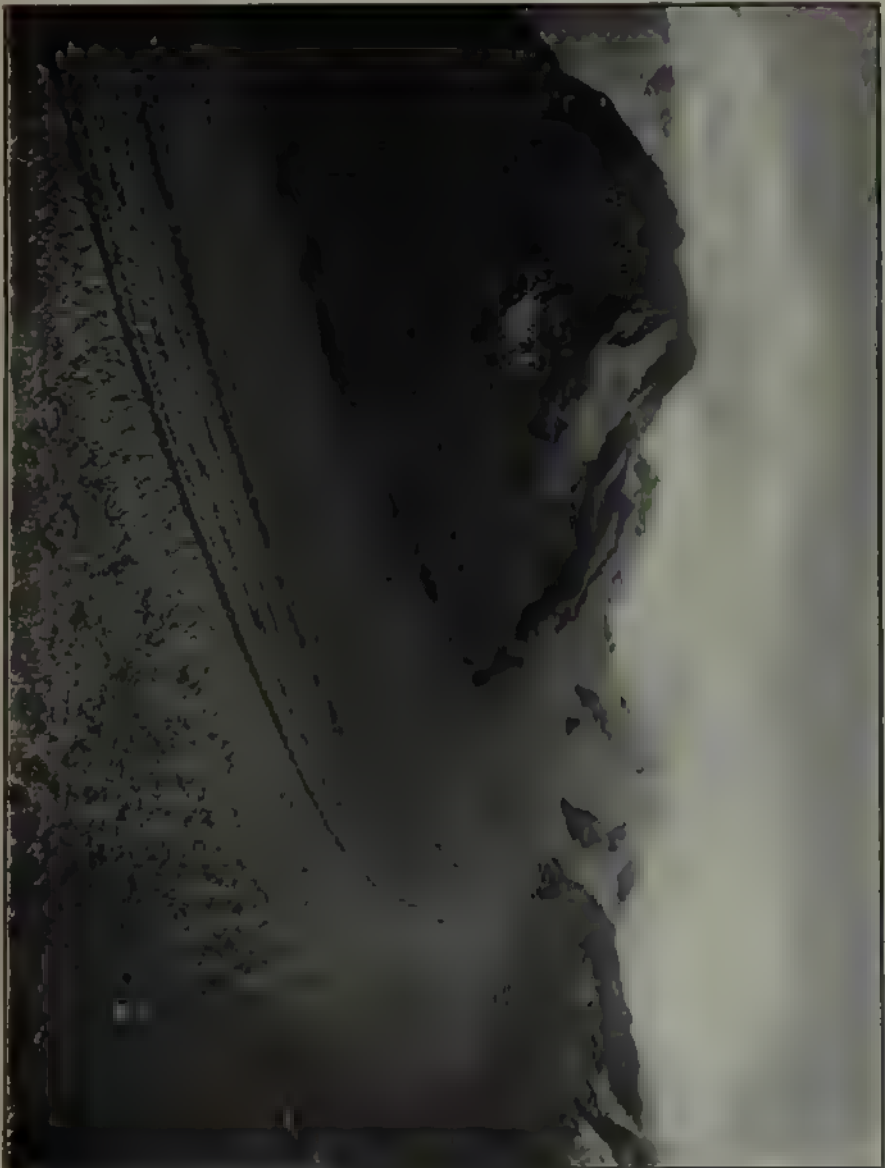


FIGURE 1.

kind last over several lifetimes; and, although it will probably be undertaken at some time, the results will only be learned by our descendants. We can, however, in certain special cases, determine the corresponding points. Sometimes a peak projects through the snow in the reservoir, and the material falling from it is carried down along a line of flow and comes again to the surface in the dissipator at the end of this line. Moraines of this kind have usually been supposed to derive their material from some elevation over which the glacier slides; but we see that in many instances such moraines were deposited on the surface of the reservoir. Other peculiarities of the reservoir may, by their reappearance in the dissipator, reveal the two ends of a line of flow; but the number of cases in which these corresponding points are known is very limited.

Around the reservoirs of many glaciers we find steep cliffs from which rocks are continually falling. They are covered up by the snow, follow their course along the lines of flow through the body of the ice, and are brought to the surface near the end of the glacier. It is an interesting observation that glaciers whose reservoirs are surrounded by rapidly weathering cliffs have their lower ends thickly covered with moraine material; whereas glaciers originating on high plateaus have perfectly clean ends, a peculiar difference entirely explained by the disposition of the lines of flow. There is no necessity, therefore, to ascribe this material to ground moraines.

The accumulation of snow in the reservoir increases from the névé line for some distance up, and as the annual deposits accumulate they flow downward and forward; each tributary or, indeed, each recess in the surrounding mountains forms its own layers of strata, and as these flow into the general trough, they are compressed and folded so that their outcrops on the surface of the ice are usually long loops pointing down stream. It frequently occurs that this folding does not show itself near the névé line, but appears further down the dissipator, at the lower ends of the lines of flow, whose origin lies far up in the reservoir where the folding begins; so that we find reproduced in the dissipator certain characteristics of the upper reservoir. Glaciers which have no well differentiated tributaries may, nevertheless, have their dissipators divided longitudinally into different systems of loops, which represent the outcrops of the folded strata from the recesses above; and the lines separating these parts, hardly distinguishable in the upper part of the dissipator, become stronger and stronger as they approach the end of the glacier. If this dividing line really separates two tributaries which have united in the reservoir, it will probably develop into an internal moraine. This is beautifully illustrated in the great Aletsch glacier (Plate II.). After the sun has set, the whole surface of this glacier, when seen from the summit of the Äggischhorn, shows most beautiful systems of loops resembling the line of a fine engraving. These systems are separated by longitudinal lines, faint at first, but growing more and more marked, and one of them becomes the great median moraine, so prominently seen at the end of the glacier.



THE ALETSCHE GLACIER FROM THE AEGISCHHORN.

The character of the ice changes very materially from the upper to the lower part of the glacier; the layers of stratification, which are very clearly marked in crevasses of the reservoir, become less and less recognizable as we go down the glacier; at the same time the systems of blue bands make themselves more and more prominent. There has been much discussion as to the origin of these bands. Forbes, who first recognized that they were an essential part of glacial phenomena, thought they were the surfaces of slipping between the different layers of ice. Agassiz contended that they were merely the transformed strata. Schlagintweit thought they were due to a stretching of the ice which allowed the air bubbles to escape and the water to soak in and freeze. Tyndall ascribed them to the effects of pressure. His delightful expositions and beautiful experiments obtained general acquiescence in his views, and even Agassiz himself was won over to consider Tyndall correct for the greater part of the blue bands. Within the last few years, the weight of opinion has returned to Agassiz's view. Indeed, the observation that the blue bands are arranged in groups according to the tributaries from which they were derived, and the fact that they do not form a single system across the trunk glacier show very clearly that their origin is in the upper parts of the reservoir, and that they are not due to the pressure in the dissipator itself. The general arrangement of the lines of flow shows us in what part of the reservoir we should look for the origin of the peculiarities of the ice at any special point of the dissipator. Tyndall argued that where two tributaries unite, the great pressure developed produced blue bands parallel to their line of juncture; these bands are always found in such a position, but they are without doubt due to the bending up of the strata at that point. Curiously enough, Tyndall did not attempt to show why the blue bands did not form a single system across the trunk glacier, which they undoubtedly would do if, as he argued, they always stood at right angles to the greatest pressure. That the bands are not always at right angles to the greatest pressure is well brought out in Plate III., which shows one group of blue bands in the Forno glacier, Switzerland. The sections in the crevasses show that the bands do not extend across the trunk glacier, but have the

shape of a shallow *U*, both arms coming to the surface within a very short distance. If the right branches of these bands are at right angles to the pressure, the left arms are certainly not.

The apparent simplicity of the blue bands at the ends of glaciers is supposed to indicate that they are formed there, as they do not reproduce the complex system further up. A glance at the maps of glaciers which have been carefully surveyed will show the median moraines in general running out to the sides of the glaciers and not extending to their ends. On the right of Plate III. a moraine can be seen running off to the side. One of the strong division lines in Plate II. follows a similar course beyond the limits of the picture. It thus often happens that the end of the glacier consists of a single tributary which exhibits only a single and simple group of bands. If the divisional moraine extends to near the end of the glacier, the more rapid velocity of the centre stretches its bands so that they can readily be mistaken for a continuance of the central group as indicated in the cut. The line where the two groups unite is apt to be covered with moraine, and the disposition of the bands here is not easily observed. The same difficulty of observation interferes with observing the curving of the bands at the junction of two tributaries, each of which extends to the end of the glacier.

The strongest argument which can be used to show that the blue veins are merely the transformed strata is that in some glaciers the stratification can be followed step by step from the reservoir to the lower part of the glacier, where it is seen to correspond to the blue veins. The Unteraar and the Forno glaciers are the only two large glaciers where this has actually been done, but on these glaciers the observation is decisive. On many small glaciers the strata can be followed to the end, but in these cases it rarely happens that they have been completely transformed into blue bands.

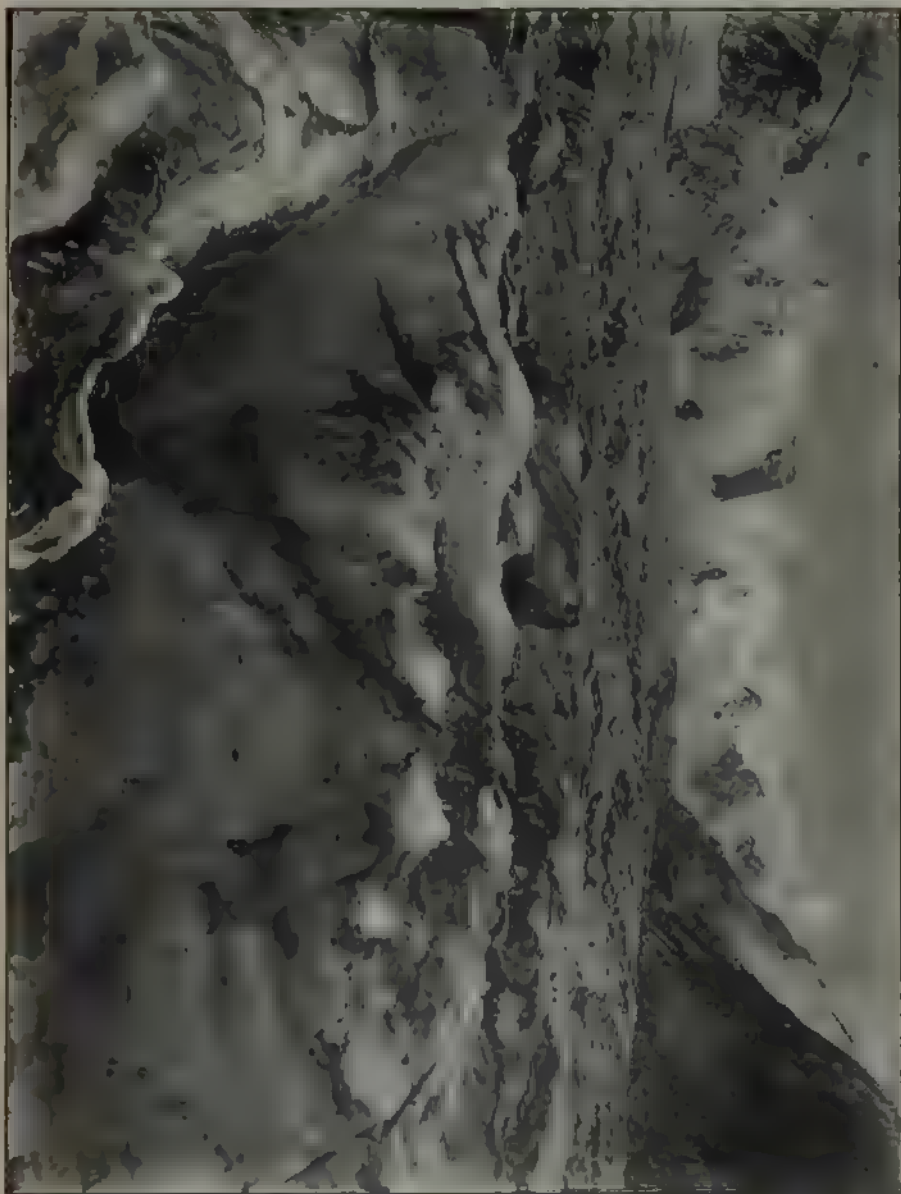


Plate III.

A Winter Ascent through the Great Gulf (Mt. Washington).

BY GEORGE N. WHIPPLE.

Read April 18, 1905.

WHILE not wishing to exalt unduly the Alpine opportunities of our humble Appalachian system, it is believed that the usual route of ascents in the Swiss Alps includes few slopes, where step-cutting is required, of equal height and steepness with that of the Great Gulf on the northerly side of Mt. Washington.

The cone of the Wetterhorn, a snow slope of exceeding steepness, rises from six hundred to seven hundred feet above its base. The Weisshorn, much more strenuous, calls for continuous step-cutting of no greater amount. In his ascent of Les Ecrins in 1864, Whymper encountered a steep slope seven hundred or eight hundred feet high which cost his party six hours' work, and his remarkable descent from the Col Dolent in 1865 occupied seven hours; of it he says: "For the first and only time in my life I looked down a slope more than a thousand feet long, set at an angle of about 50° , which was a sheet of ice from top to bottom." When Leslie Stephen crossed the Eiger Joch in 1859, his party climbed an ice slope about one thousand feet in altitude and with an inclination of from 51° to 52° , which required seven hours of step-cutting, — a feat which Mr. Stephen deemed well worthy of record. The rim of the head-wall of the Great Gulf cannot be far from fourteen hundred feet above its base and half a mile or more distant from it, and a party of three spent seven and a half hours in the invigorating exercise of step-cutting up its icy surface on the 27th of January, 1905.

Comparisons aside, it is beyond dispute that this head-wall in winter offers a capital climb to those who find enjoyment in that particular form of "what some people call pleasure," and there surely must be something in a place that costs an hour's time more than is required for the ascent of the Matterhorn, even for a party as slow and inexperienced as we were.

I had had my eye on this particular expedition since the February of 1903, when six of us had made a very sporting ascent

8 A WINTER ASCENT THROUGH THE GREAT GULF.

of the head-wall of Huntington's Ravine ; and therefore it was with peculiar satisfaction that I found myself starting upon it during our stay at the Mt. Madison House in Gorham. This statement needs qualification. I know of nothing more discouraging to complacency, or more likely to sour, for the time being, a naturally sweet nature, than to turn out of a comfortable bed some hours before dawn on a cold winter morning, to indue an exaggerated amount of clothing, to begin a so-called breakfast about the time when the sleigh is announced, to hastily cram a few last necessities into an already over-filled rucksack (wondering at the time how many have been forgotten), to snatch an ice-axe and sally forth upon a quest sure to result in a plethora of toil, and sure of nothing else. Truly, as the psalmist says, we are fearfully and wonderfully made.

The hour was six, the air was cold ; a dissipated, gibbous moon was ploughing through a field of watery-looking clouds in the west, and the aspect of Nature did not stimulate hope. What Harland Perkins and Warren Hart were revolving I know not, for we were morose and uncommunicative ; but the third member of the trio marvelled, as he had before on like occasions, at his unaccountable infatuation, and felt capable of sympathizing with a candidate for a first-class asylum for feeble-minded youth. This lasted perhaps an hour, when a magical touch transmuted all. A turn of the road brought us in sight of Madison, then of Adams, and then of Washington, and we all sat up and wondered. The "rose of dawn" flushed their pure snows with radiance ineffable. They soared like mountains of dream in the blue heaven, wondrous in color and in form, and of texture delicate and evanescent. They seemed like clouds that the wind would blow away, as fleeting as thistle-down that a breath might scatter. Our spirits revived, our self-respect returned, and we fell to discussing our most sane and delightful trip.

Our plan was to enter the Gulf by way of the West branch of the Peabody ; and at 7.45 we slid down the steep bank at the junction of that branch with the main stream, which flows from Huntington's Ravine, and were fairly embarked. This junction is about half a mile north of the Glen cottage.

We found fulfilled the promise of the tickets on which we



THE GREAT GULF, MT. WASHINGTON.

had travelled to Gorham, — “Good going Jan. 21st to 27th.” The going was good. We were able to keep in the bed of the stream, or rather on its counterpane, practically all the way, avoiding all brush and scrub. Hart, possessing a superior knowledge of the route and an ambitious nature, led the procession, and the only incidents which diversified this part of the trip were his occasional partial disappearances. Without the slightest warning he would suddenly subside, sometimes as far as his waist, sometimes as far as his shoulders, carrying down with him a large segment of the roof of the stream. The first time this happened Perkins and I rushed to his assistance in considerable alarm, as it is no joke to get one’s feet wet under such circumstances, but were met with such imperturbability and *sang froid* that the subsequent proceedings interested us no more. His feet entirely fast in the mass of débris rapidly being converted into slush, he would survey the landscape in a meditative manner, hazard the prediction that the water must be at least four inches deep, extricate his snowshoes by the aid of a remarkable mountaineering implement in the shape of a long-handled boat-hook which he affected, and clamber out to repeat the process farther on.

Our course upstream led us a little north of west for three or four miles, and then, north of the spur of Washington which starts from above the Halfway House, bent round to the southwest for another three or four miles to Spaulding’s Lake. The first part of the way we were opening up views of the Carter and Carter-Moriah range behind us, while later, first ahead and then behind, Madison and Adams played the drama of “Box and Cox.” The grade was very easy for most of the way until we struck the waterfalls a mile or so below Spaulding’s Lake, and there were no difficulties whatever on the entire route. We halted for a second breakfast about eleven, and reached Spaulding’s Lake at 12.45. The weather had not improved. Light snow began to fall soon after our second breakfast, and as we cowered under a ledge on the shore of the lake to partake of luncheon, a fierce squall swooped down, blotting out all but our immediate surroundings. It seemed very cold, though the glass showed only 14°. We would have parted with the chances of our success for a small sum at that time; but the squall passed,

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the scenery, such as it was, came back, and we decided to have a try at the thing anyway.

At 1.30 we got under way, and in a few moments found it wise to exchange snowshoes for creepers. Only a few feet of the thick growth above the lake, that is such an obstacle to progress in summer, projected above the snow, but the cliffs of Clay and of the head-wall were thinly coated and looked very forbidding. From the lake the dim disk of the sun had been seen for a few moments over the neck of Clay, and when we reached the cluster of boulders, which form in summer such a generous cave, we had a most inspiring burst of sunshine; but it was the last effort on the part of that luminary, who was forced out of business by his more active rival the snow squall. A sort of shelf had been formed in the snow by the action of the wind just at the base of these boulders, and we took this last opportunity to sit down and gather strength for the fray. The view from this point, raking as it does the Northern Peaks, extending into the wooded depths of the Gulf, and bounded by the blue mountains of the horizon, is superb and well repays the effort required to gain it.

A detailed narrative of the succeeding hours would be monotonous and unprofitable. Chop, chop, chop. Chop, chop, chop. The bits of ice and crust went hissing down the slope; the snow squalls descended and enveloped us; the dark rim of the wall above us certainly seemed no nearer than an hour ago. How slowly we moved! How slowly the time went by!

It may be said that not so much of it would have gone by had our creeper equipment been equal for all, but unfortunately one of us was poorly provided in that particular, and the speed of the party became the speed of the slowest member, for it was necessary to keep together. On this account practically every step had to be cut. There were stretches where with good creepers and good nerve one might have walked without step-cutting, but the one who, wearying of that exercise, essayed to do it, essayed it but once. For a while he made great progress, an object of wonder and admiration to his fellows, and then like Lucifer he fell. And yet not like Lucifer, for after a slide of what seemed to him like a hundred feet and was actually much less, he was able to bring himself up with the aid of his axe,



HEAD WALL OF THE GREAT GULF.

and held the mountain in a most tight and loving embrace for fifteen minutes before evincing any desire to proceed.

Step-cutting was resumed for all, and we took turns at it. The labor was severe, for the crust had nothing beneath it but crust, and was very hard. From eight to twenty strokes were required to fashion a step, the smaller number on the lower and the larger on the upper part of the wall. The inclination was probably 40° a considerable part of the way. Toward the top, where real ice was encountered, the Architect said 60° . It became too dark to see the steps. We had to feel for them with our axes and drag ourselves up into them with the utmost care. The top of the wall had long ago disappeared. We began to doubt its existence. The higher we got the steeper it grew, and the particles of ice seemed to hiss more loudly as they tobogganed down. Our situation resembled that of Leslie Stephen's party on the climb to the Eiger Joch. He says: "The ice was very hard, and it was necessary, as Lauener observed, to cut steps in it as big as soup-tureens, for the result of a slip would in all probability have been that the rest of our lives would have been spent in sliding down a snow slope, and that that employment would not have lasted long enough to become at all monotonous."

As this is not a novel by the ingenious philosopher, Henry James, there will be no description of our thoughts on this occasion. Had we been so unfortunate as to be characters of his, we might have reflected on the Evil Spirit that drags men from fairly comfortable homes to climb mountains in winter; we might have tried to reproduce the phraseology of our maternal parents could they have seen us; we might have asked ourselves just what particular business we had in that particular spot; we might have made mental photographs of just what we would not do when we got out of it. Being ourselves and thoroughly delighted with what we were doing, no such thoughts escaped our lips. On the infrequent occasions when we did use our valuable breath for words, the latter were jocular and congratulatory. Our humorous instincts came out strongly. At this distance I fail to recall any of the jokes; but I know that they were received with appreciation, and think that they were probably better than many that are printed.

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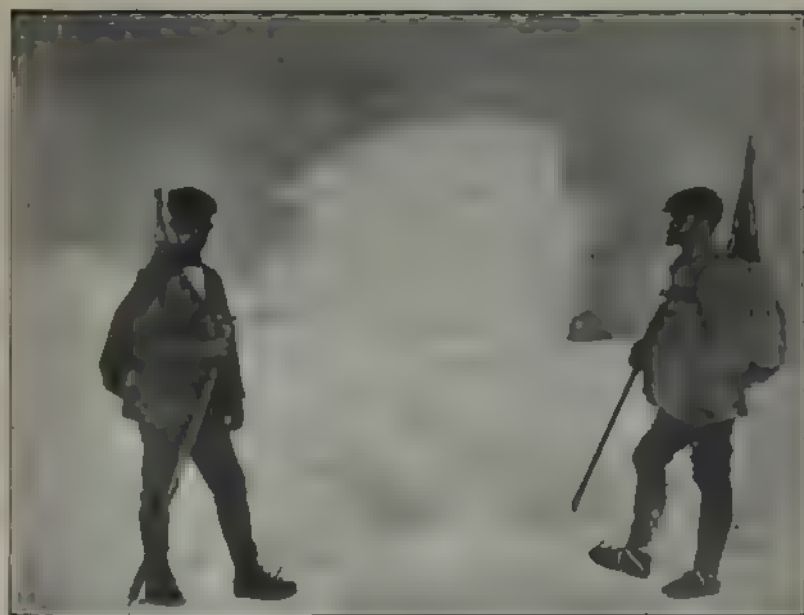
At last we pulled ourselves over the rim of the wall and struck a match. It was nine P. M. What might have been called in Boston a blizzard — but on Mt. Washington was merely a zephyr — was in progress, and the air was thick with snow. We decided to make for the summit and spend the night as best we might in that abode of luxury, the stage-office. And here a curious thing happened. Hart omitted mention of it in his "Globe" article¹ because he thought it would not be believed. We had located the railroad without difficulty, and started along the line of telegraph posts on its eastern side. We could just make out the post ahead of us as we moved from one to the other; but we were actually for some time in doubt as to whether we were going up hill or down. We stopped and experimented and talked it over, and finally decided that we must be going up hill, whether it seemed so or not. The outcome proved that we were, for in fifteen or twenty minutes we reached the top and the shelter of the stage-office. Soon we had a fire going, which quickly raised the temperature from 10° to 30°. We melted some snow and had a delicious drink of hot chocolate, and ate a portion of the small amount of food remaining. We then brought in the old slat bedstead, with its delightfully cool straw mattress, from the adjoining room, placed it with its foot to the stove, and addressed ourselves to undressing for the night. This function was brief, and stopped with the removal of our creepers. Under most circumstances we prefer a bed to ourselves, but for this night only, no one objected to having two bedfellows. We wrapped the drapery of our couch about us (consisting of a charming piece of second-hand carpet which some one had thoughtfully stored in the building), and lay down to pleasant dreams. At least it sounds well to say so. We not only slept but over-slept, for we had planned to start down at three, and we did not wake until four. The fire had been replenished during the night by one of the party whose modesty forbids my naming him (it was not myself) and was still alive, and the thermometer still stood at 30°.

Breakfast was even more sketchy than the preceding meal had been, for the commissary department had gone to pieces. We always begin with fruit; and in spite of our limited menu

¹ See *Boston Globe* for February 19, 1905.



SUMMIT HOUSE (MT. WASHINGTON) IN MIDWINTER.



FROST WORK ON TELEGRAPH POLE.

we were able to maintain this habit. An apple frozen in its passage up the mountain as hard as a stone had been placed on the shelf behind the stove the night before, and was found in a delicious state of pulpiness. A few mouthfuls apiece were quite sufficient. For a second course I think we had half a sandwich, not quite as juicy as the fruit, but very good. At 4.45 we emerged into the cold world, finding the weather much as we had left it. It was dark and it was thick, and for the first half mile of the Carriage Road we had to move slowly and with extreme caution, to avoid losing our way. Once, however, round the bend at the point where the road comes nearest to the Great Gulf, we found ourselves, as Parker would say, "on Easy Street," and trotted merrily down to the Glen, which we reached at 8.15, and refreshed ourselves with hot milk and crackers. It was a good ending of a great trip.

This narrative has but one moral. If you wish to climb Mt. Washington in winter from the Great Gulf, be sure of the commissary department, and do not shrink from an early start.

A Day's Trip over the Presidential Range.

BY **HERSCHEL C. PARKER.**

Read April 18, 1905.

THE trip from the Ravine House over the Northern Peaks and down the Crawford Path to the Crawford House is a very interesting day's walk, and by no means a difficult one. If the return be made by road, an additional distance of some twenty miles back to the starting point, the trip becomes something of a feat of endurance for even the strongest walkers. On September 27, 1882, such a trip was made by Mr. Eugene B. Cook and Dr. G. A. Sargent, a short but interesting account of which may be found in *APPALACHIA*, Vol. IV., No. 1. Up to last summer, I am not aware that Mr. Cook's walk was ever equalled by any recorded day's trip in the White Mts. for altitude climbed and distance traversed (approximately 10,000 feet, and 43 miles).

The Presidential Range, however, does not end with Mt. Clinton, where the Crawford Path descends to the Crawford House, but includes also Mt. Jackson and Mt. Webster; or,

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topographically speaking, the Presidential Range extends from the valley at Randolph to the Crawford Notch.

It occurred to the writer that a day's excursion including Mts. Webster and Jackson, and so completing the circuit of the Presidential Range, might prove an interesting experience, and would certainly furnish plenty of exercise, when an opportunity for the more strenuous and difficult Alpine work was not at hand. Such were the conditions last July, and in the company of Mr. Warren L. Symonds, whose remarkable speed records on the Crawford Path seem to mark the limit of achievement in that direction, the trip was successfully accomplished.

Several years ago a path was cut from the Crawford House to the summit of Mt. Webster and a branch path to the summit of Mt. Jackson, but there is no path from the summit of Webster to Jackson, or from Jackson to Clinton, and the "scrub" between these summits, especially the two latter, is difficult and very trying where fast time is essential.

What this difficulty is in terms of altitude or distance it would be impossible to estimate with any degree of accuracy, but the exertion required to reach the summit of Mt. Clinton via Mts. Webster and Jackson appears to the writer to be fully equal to that required to traverse the remainder of the Crawford Path and all the Northern Peaks to the Ravine House.

On the morning of July 12, we left the Crawford House at 6 o'clock. The weather was perfectly clear, but uncomfortably warm even at this early hour, and the conditions were anything but ideal for the work before us. At 7.20 we arrived at the summit of Mt. Webster, and after a 15 minutes' rest pushed on through the "scrub" to Mt. Jackson, which we reached at 8.30. Leaving 10 minutes later, we made our way, still through the dense scrub, coming out upon the Crawford Path about 20 minutes below the summit of Mt. Clinton, where we arrived at 10.30. The hardest part of the trip was now over, but so exhausting had been the work since leaving the summit of Mt. Webster that we were glad to take a very moderate pace for the remainder of the distance to the Summit House. We traversed all the peaks along the Crawford Path, however, including both "Big Monroe" and "Little Monroe." As we commenced the climb of the cone of Washington dark clouds were gathering,

but we reached the Summit House before the rain began, and refreshed ourselves with a most excellent dinner and an hour's rest.

Leaving at 2.25, in clearing weather, we made good progress over Clay and Jefferson to Spaulding Spring, but as we approached Mt. Adams the weather again became very bad, and so severe were the rain and wind that I was glad to seek shelter for a time beneath some convenient scrub. From now on, while we were traversing the several summits of Adams and the summit of Madison, the wind continued strong, and the clouds threatening.

It was 8.15 P. M. when we arrived at the Ravine House, where supper was taken and a lantern kindly furnished us by Mr. Watson. Then, amid the good wishes of our many friends who were sojourning at the hotel, we set out for our long walk back to Crawford's in inky blackness with the rain descending. About an hour beyond the Ravine House the lightning flashes became more vivid and the rain increased to a terrific down-pour. Luckily we had just passed a freight car close by the road on a siding, and returning to this we waited for forty-five minutes while the rain descended in torrents.

At last at 11 P. M., the rain having moderated, we climbed out and continued our way to Bowman's, where, taking the State Road, we made the long climb over Mt. Dartmouth, gaining a sufficient elevation to again take us amongst the low lying clouds, our way lighted only by the uncertain rays of the lantern, which threatened at times to go out altogether. Had this occurred, so dark was the night, we should have been compelled to await the arrival of daylight before proceeding. Reaching the highest point of the road at 2 A. M., we crossed the railroad leading to the base of Mt. Washington at 3.15, and arrived at the Crawford House at 4.15 A. M.

My estimate of the distances made in the above trip is as follows ; Crawford's to Summit House via Mts. Webster, Jackson, etc., 14 miles ; Summit House to Ravine House via the Northern peaks, including Mt. Madison, 11 miles ; Ravine House to Crawford's via State Road, 18 miles ; total, 43 miles. For the altitudes I should estimate : over Southern Peaks to Summit, 5,500 ft.; over Northern Peaks to Ravine House, 2,500 ft.;

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over State Road to Crawford, 2,500 ft.; total, 10,500 ft. These estimates are, of course, only approximate, and the total altitude and distance may be somewhat in excess of the above figures.

The following table prepared by Mr. Symonds gives the times of arrival and departure at the various points along our route. It will be observed that of the total $22\frac{1}{4}$ hours less than 18 hours was the actual walking time, and it is probable that the rain increased this time from one to two hours over what would have been required under normal conditions.

	Arrived.	Left.
Crawford House		6.00 A. M.
Summit of Mt. Webster	7.20 A. M.	7.35
Through scrub to Jackson	8.30	8.40
“ “ “ Clinton	10.30	10.45
Spring between Clinton and Mt. Pleasant	11.00	11.15
Summit of Mt. Pleasant	11.30	11.40
“ “ “ Franklin	12.05 P. M.	
“ “ Little Monroe	12.25	
“ “ Big “	12.35	
Spring at Refuge	12.50	
Base of Cone	1.00	
Summit House	1.25	
1st summit of Clay	2.50	
2d “ “ “	2.54	
3d “ “ “	3.00	
Monticello Lawn	3.35	3.45
Summit of Mt. Jefferson	3.50	3.57
2d “ “ “ “	3.59	
Spaulding Spring	4.15	4.25
Mt. Adams (Sam)	5.05	
(Delayed by storm)		
Mt. Adams (John)	5.35	
“ “ (J. Q.)	5.55	
Madison Hut	6.12	
Summit of Mt. Madison	6.30	
Madison Hut	6.50	7.05
Ravine House	8.15	9.05
Freight car during “ cloud- burst ”	10.15	11.00

Started on State Road	11.45
Highest point on State Road	2.00 A. M.
Crossed carriage road to base	3.00
“ railroad to base	3.15
Crawford House	4.15

With a Minbashi in Turkestan.

BY ELLSWORTH HUNTINGTON.

As the train pulled into the terminal station of the Central Asiatic Railroad at Andijan in the heart of Asia, we seemed to be entering a town of freight cars. The special car which the Russian government, with its usual courtesy, had put at the disposal of our section of the Pumpelly Expedition of the Carnegie Institution was switched on to a side track, among scores of freight cars occupied by Russian families left homeless by the earthquake of the previous winter. Temporary tracks extended in all directions, even along the streets which radiate from the railroad station. When it became necessary to look up a restaurant, we found a freight car serving as a kitchen, while the dining-room was a shaky lean-to of canvas. The table was high and the chairs were low, but all the diners could at least see one another's heads, and that was enough to show that Professor William M. Davis of Harvard University and the writer were foreigners. It was clear that our interpreter, Mr. Brovtzine, was an educated young Russian from the capital, but were we French, English, or Germans? The motley company of Russians, Georgians, and Armenians discussed the question without coming to agreement, until a slant-eyed, sparsely bearded Khirghiz settled the matter: "I know, they are Tibetans." When it was explained that we were Americans, this unusually well-informed man at once caught the idea. "Ah, yes, I know of America. What is that city full of electricity, so full that it killed forty thousand people in one day?" New York, Boston, Chicago were tried, but nothing fitted until Mr. Brovtzine suggested Martinique and its volcanoes. That was it. Naturally Martinique brought up Spain and the Spanish war, and we had new proofs of the degree to which that war enhanced American prestige. America was a very vague term to most of the

people whom we met, and we were often asked whether we came from the northern or the southern continent. Everywhere, however, whether among officials or peasants, the people seemed to feel friendly toward America, and the mere fact of being Americans insured us a cordial reception.

Andijan lies in the fertile Ferghana basin, where the fields are blessed by the continual warmth of an unclouded summer sun, and yet are perennially watered by streams from lofty mountains. Like most cities of Turkestan it consists of an old native town, and a new Russian town of the same type as the new towns of our semi-arid West. On either side of the broad straight streets of the Russian town muddy canals irrigate double rows of shady poplars and other quickly growing trees. The fearful dust which might be stirred up by tiny-wheeled Russian carriages and huge-wheeled native carts is allayed by the labors of half-naked men with buckets, who scoop water from the ditches and with a skillful twist spread a bucketful evenly over many square yards. The houses, one-story structures, made of bricks and mud because of the scarcity of wood, are set in the midst of large walled gardens and orchards. In the old town the houses of the natives, whom the Russians call Sarts, are made of mud with flat grassy roofs, and crowd closely upon the hot narrow streets, which are left to unmitigated dustiness. The waving boughs of fruit trees peeping over the high walls make the streets more ugly and desolate by contrast with the freshness which one knows must lie concealed.

At the time of our visit in June, 1903, six months after the great earthquake, a large number of Russians were still living in freight cars, and the majority of the natives inhabited temporary huts of straw matting, round felt tents, and little wooden cages like old-fashioned New England corn-cribs perched six or eight feet above the ground and supposed to be especially safe during earthquakes.

Such earthquakes as that of Andijan emphasize the fact that we live upon a slowly cooling and hence contracting globe, and at first sight this seems fraught wholly with evil. Suppose, however, that a few ages ago, say at the beginning of the Tertiary era, when the continents had assumed nearly their present form, the earth had ceased to contract and had remained free

from earthquakes and volcanoes and from the loss of heat which they signify. Before the advent of man, if man could ever have been evolved under such conditions, the continents would have been reduced to peneplains, that is, the mountains would have become rounded hills deeply buried in soil, and the rest of the land would have been converted into vast plains, so flat that the rivers would stagnate and form huge swamps. In the tropics man, like the rivers, would stagnate in steamy jungles such as those of the Congo, while in temperate and arctic regions he would roam through wet plains and tundras. Even at the best, among the drier forests of the central uplands, he could not rise above the savage state of the Stone Age, for the deep and universal cover of soil would forever prevent him from discovering the metals.

At six o'clock on the morning of June 27, 1903, we were ready to leave Andijan and its earthquakes. The water-pipe was being passed from mouth to mouth for the last time in honor of the two Sart policemen who were to act as servants; and the loaded horses were kicking and squealing by the fence at the ruined railroad station. Only the Minbashi of Kugart was lacking. He was an official whom the Russian governor of the district had detailed to accompany us for a few days. To our surprise a middle-aged man, evidently rich and influential, rode up with four attendants and announced himself as the Minbashi. The governor had spoken of him as a Sart, but he indignantly repudiated the name, and said that there was no such thing as Sarts, and he and his people were Turks. Whatever his race may have been, he was a type of the best that it can produce. In his manner toward rich and poor there was a charmingly gentle courtesy, which seems characteristic of the high-born members of the so-called Sart race. He loved a joke, and we often heard his hearty laugh, sometimes at our expense. The Minbashi's attendants consisted of two semi-military "jigits" or "brave men," an interpreter, and a secretary, whose distinction it was to carry in his girdle a brass horn for reed pens and ink. All four attendants wore felt hats like that of their chief, and the way in which the brims of the hats turned up or down with the varying moods of the wearers was a character study. The two men of peace wore dark gowns as befitted their station,

and were armed only with whips. The "jigits" were dressed in white, and carried revolvers and scimitars.

Our route from Andijan led eastward at first across the plain of Ferghana. The numerous people who were on their way to market all turned out of the road as we approached; and we soon discovered that a "jigit" was riding a few hundred yards ahead to warn all travellers that people of rank were approaching. The pedestrians took their stand under the trees which bordered the way, and as the Minbashi's party passed put their hands over their stomachs and bowed impressively from the waist, and always all in unison whether they numbered two or a dozen. The horsemen dismounted and saluted like the rest, and when two men on a single horse came around the corner suddenly, there was a frantic scramble to get off in time, and more than once the two kicked each other vigorously in their haste to be polite. The drivers of the high-wheeled carts anxiously hurried their clumsy vehicles to the edge of the road, jumped from their horses' backs, where they habitually squat like toads with their feet on the shafts, and stood in the usual abject position. To some of these salutations the Minbashi made no reply, sometimes he nodded, and occasionally went so far as to place his hand on his stomach. The only people who paid no respect to our cavalcade were the women, poor creatures clad in dull gray palls with stiff dark veils hanging like curtains before their faces, and with two tail-like ribbons of gray hanging from head to heels behind. The very few whom we met on foot either turned their faces to the wall or hurried off the street; while those riding cross-legged on the wooden floors of the high springless carts could not escape and merely drew their palls more closely over their faces. No women were seen at work in the fields, although there were plenty of men with brown bodies naked to the waist. Nowhere, not even in Turkey, is the utter seclusion of women more impressive.

For the first dozen miles from Andijan all the numerous houses were in ruins, and the red-dressed forms of the children who fled at our approach disappeared behind broken mud walls, fallen roofs, or temporary huts of straw-matting, reeds, and felt. Outside the villages the shady roads led between rich fields of cotton, grain, and rice. The best cotton is a variety lately



THE MINBASHI OF KUGART AND RETAINERS.

From a photograph by E. Huntington

introduced from America, and there is a general idea that every American must be an expert in cotton culture. Acres and acres of land lay under water for rice, and occasionally men were ploughing in the water with clumsy native ploughs of wood. Each small rice field stands a few inches above or below its neighbor, so that water can flow from one to the other. Between the fields are mud walls a foot high, curved concentrically with the concave side toward the water-supply. As the water which comes to the fields is muddy and that which flows off is clear, their level must be rising at a relatively rapid rate.

Our first night was spent at Kurgan Tepeh, as the guests of another belted Minbashi. This term means literally "head of a thousand," or "colonel," and is the official title of the native head of a district embracing from ten to thirty villages. Minbashis are elected by popular vote, and are about equal in dignity to representatives in the state legislatures in America. They are assisted by native judges and heads of villages, and have considerable power, which is exercised in accordance with the Mohammedan law in force before the conquest of the country by the Russians in 1868. The natives appear contented and prosperous under Russian rule, and on the whole seem to genuinely believe that they are better off now than they were formerly under the cruel khans of Kokan. Russia allows a liberal and wise degree of self-government. All classes take a deep interest in the annual elections, and thus an outlet is provided for the political energy which might otherwise be turned against the conquerors. Of course there are malcontents, but they are few in number or else afraid to express themselves.

Although Kurgan Tepeh is only twenty-odd miles from Andijan, it was quite uninjured at the time of the earthquakes. The high mud walls of the narrow shady streets allow the traveller to see little of the jealously guarded indoor life of the people. Among the few visible varieties of daily work was the making of the immense wheels of native carts, as shown in Plate VIII. An elm stick, six inches through at the base, was placed between two posts, and gradually bent into a half circle by the oft-repeated efforts of half a dozen grunting men and boys. When the rim thus formed was ready to be trimmed, it was so hot that one could scarcely touch it. Not far from the

wheelwright's out-door shop was a water-mill for hulling rice. A clumsy wooden paddle wheel (A) like the toy ones made by boys, turned an axle, which was merely an untrimmed tree trunk (B). At each revolution two pegs (C) in the sides of the axle pushed down the ends of levers (E) fitted with wooden mallets at the ends inside the mill. When the pegs released the levers, the hammers fell of their own weight and crushed the hulls of the rice.

The liveliest place in every village is the open tea-house, in which the sleek Sart loves to slowly sip his strong tea, the sweeter the better, and rehearse the latest scandal and gossip. He as invariably drinks his tea from a bowl as the Russian of this part of the world from a glass, and the amount that he can consume seems unlimited. Whenever we were to stop at a tea-house, as we often did by the Minbashi's invitation, an attendant was sent ahead to make preparations. As a result we found the streets about the tea-house crowded with men and boys who formed in lines on either side and leaned forward in unison at the proper moment. The chief men greeted the Minbashi more intimately. Bending over his outstretched hand, almost as though to kiss it, they pressed it gently between both of theirs. Then, standing upright, they stroked their beards with both hands, in memory of the Prophet. Next the tall urn-shaped hubble-bubble was brought out with tobacco and a live coal lying in the bowl at the top of the slender neck. After a few whiffs from the end of the two-foot stem, the Minbashi passed the pipe to the chief men, each of whom in turn took a whiff with a pleasant bubbling sound as the smoke passed through the water.

Apart from the chattering crowd at one tea-house stood a silent sad-eyed man, ragged and dirty, with a knotted bundle of cloth at his feet. At a word from the Minbashi he looked for something in his clothes, but to his dismay could not find it. A laugh went up from the bystanders as he hunted in rags, girdle, and bundle, frantically, as for something precious. At last he drew from the bundle a flute, and the crowd grew still as he played a simple tune, odd to our ears, but not unmusical. The poor fellow was half witted, they told us, and could do nothing but make music. Such unfortunates and minstrels of



SART TEA HOUSE IN THE FERGHANA BASIN
A WHEELWRIGHT MAKING RIM OF WHEEL
WATER MILL FOR HULLING RICE

From photographs by E. Huntington

brighter wits with long-necked, three-stringed mandolins amuse the tea-house crowds of idle gossipers.

During the second day's journey from Andijan we crossed the Kara Daria River, one of the chief sources of the Syr or Jaxartes. Although the river is heavily loaded with silt and pebbles from the neighboring lofty mountains, it is not at present an agent of deposition, but like most of the streams of Turkestan it is cutting into its previous deposits and forming a terrace from ten to twenty-five feet high, above which is the smooth expanse of the main floor of the Ferghana basin. The flood-plain itself, about a mile wide, is composed of coarse gravel, through which the stream wanders in numerous diverging and converging channels, forming a pattern which has well been called braided.

As we approached the river, our party was augmented by more white-clad "jigits" and by villagers bringing carts in which we were to ford the stream. The ford is practicable for horsemen; but in order to avoid the chance of getting wet, baggage and persons of quality have to cross in native carts, the floors of which are as high as the back of a horse. Of our four carts one was for the foreigners, one for the Minbashi and his men of peace, and one for the baggage. The fourth must have been for dignity, as it carried nothing, although our kind host seemed to think it necessary. As our cart zigzagged up and down in the broad stream along gravel bars where the water was shallowest, it rocked and heaved exhilaratingly, and seemed to be sailing swiftly up the chocolate flood. In front and behind thirty men were waving their whips and shouting, while their horses splashed and stumbled over hidden boulders, and the carts sailed steadily forward on their precarious voyage.

Beyond the river the Minbashi pointed out thrifty rice fields belonging to himself, and soon it was time to stop at one of his five houses. The house was spoiled by an attempt to make it European, but there was no such drawback in the garden or orchard to which we were taken after tea had been served. Awnings of silk and embroidery had been hung above, while rich rugs and felts covered the ground. On one side was a small platform a yard high spread with silk quilts, the place of the most honored guest. On the other side cheap chairs

surrounded a voluminously draped table on which stood plates of bread, lump sugar, small dark-red cherries, little red apples, delicious great apricots, gaudy Russian comfits, and large fresh cucumbers to be peeled and eaten like apples. Everything except the sugar and candy was from our host's own farms, he proudly told us. He sat with us for a time, as he had done in the house, but not once would he join us in eating. He left when tea was again served. That was followed by pilaf or rice, — cooked in butter with scraps of mutton, the universal dish of the Orient, — by an uninviting calf's heart cooked whole, by a second style of mutton, by tripe with vinegar, and lastly by more tea. I am not quite sure whether tea was served seven or eight times that day.

During the first three days of our journey we stopped at three of the Minbashi's five houses, and were everywhere treated with marked politeness. Aside from the characteristically excessive number of meals, the only drawback was that our host's hospitality was thoroughly Oriental in another way. The Minbashi would insist on making presents. When Professor Davis inadvertently admired some rugs, the Minbashi said that he had a little one which he wanted to give to his guest, not as a present, but merely as a remembrance. It was a very little one, a mere trifle, which some day in far-off America might remind his honored guest of the Minbashi of Kugart. The rug proved to be large, and naturally Professor Davis felt hesitation in accepting it. After a long discussion the servants took a hand when the Minbashi left the room. "Why," said they, "it is as impossible for a guest to leave this house without accepting a present as it is for a dead man to stand upright in his grave." There was no escape from accepting the gift. Something of equal value was of course given in return, but the Minbashi apparently made his gift for the pure pleasure of giving.

Conversation with our host was hampered by the necessity of speaking through two interpreters. Still he seemed to enjoy tales of other lands, and often expressed his wonder in the usual Sart fashion, "O-ho," with a rising inflection and long drawn out at the end. As to his own travels, one of the things that impressed him most on his journey to the coronation of the present czar at Moscow was the setting sun as seen from the

steamer on the Caspian Sea. "It looked like half of a great watermelon."

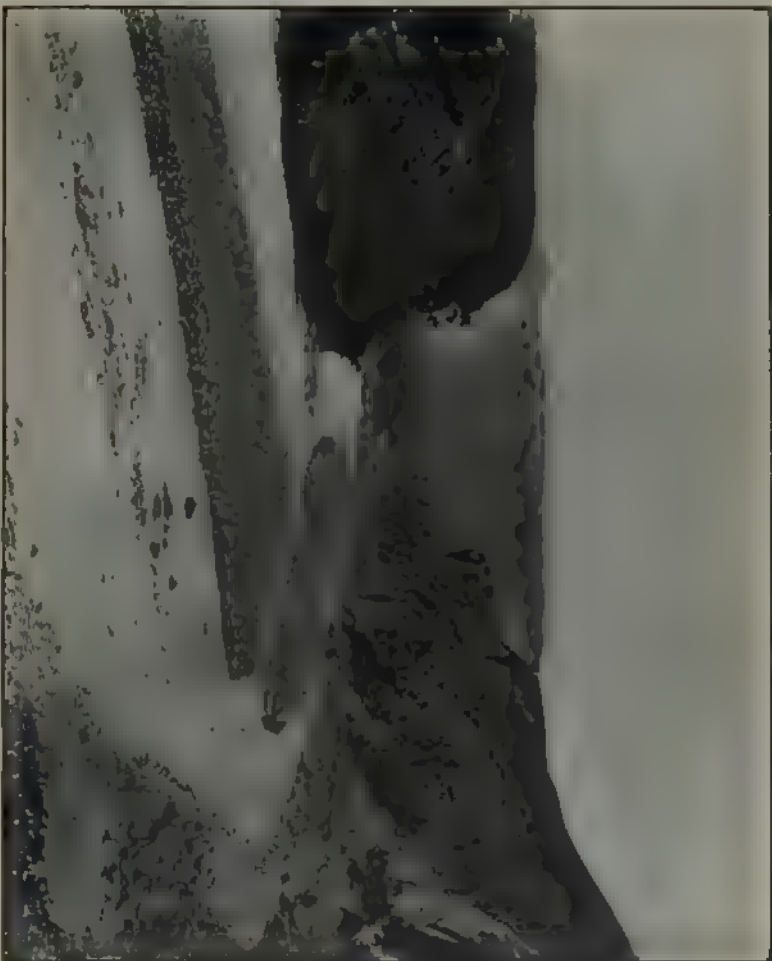
North of the Syr Daria our way led up the broadly terraced valley of Kugart, at first through the fertile plains and lowlands occupied by the polite but none too honest race of Sarts, who are tillers of the soil and merchants. Then as the valley narrows, as the terraces become higher and less broad and the mountains become lofty enough to be well watered and green, the territory of the nomadic Khirghiz is reached. Jegetal, the first Khirghiz village which we encountered, was set in the broad green expanse of the upper terrace. Because of the altitude of the surrounding mountains rain is so abundant that wheat grows with little or no irrigation, and as we approached the village the horses loitered lazily along a scarcely visible track, concealed by rank grass which switched the knees of riders on horseback. When I tried to cross some of the little mountain brooks which irrigate the terrace, I could scarcely force a way through a perfect tangle of green things gay with birds and flowers. Small shrubs, reedy grasses, and rank weeds were bound together by pretty twining vines, the loveliest of which was a delicate sweet pea with eight or ten pink blossoms on each stem. Although low plants thrive so well, there are no trees except around the villages.

The houses of Jegetal, like those of most Khirghiz villages, are set without order at intervals of a few hundred feet in a maze of green weeds, traversed by unseen paths and hidden canals which lead to scanty vegetable gardens and cornfields. There is nothing of the well-tilled, long-inhabited air which is so characteristic of the Sart villages in the neighboring lowlands. From May to October the tumble-down houses, mud-walled, round-roofed, and green with weeds, are unoccupied, as the people migrate to the mountains and there set up their kibitkas. In July the Khirghiz who are not needed to care for the cattle descend to the valleys for the tedious work of cutting the tall grass by hand, tying it in bundles, and storing it for the winter. On the 29th of June the first comers, a little old woman and her husband, whom I met as I was wandering among the deserted houses, had just arrived at Jegetal. When I began to talk with the inoffensive, quiet little couple, they

showed the politeness which is so characteristic of the Khirghiz. Promptly seating themselves on the grass under the large tree which shaded their tiny kibitka, they patted the ground and asked me to sit down too, and have some sour milk to drink. As we sat cross-legged in the cool shade beside a clear bubbling brook, they seemed to take genuine pleasure in telling of the kibitkas in the mountains, and of how they had come down early with their daughter to begin harvesting the grass.

Beyond Jegetal the Minbashi left us, but for two days more, as we climbed the beautiful valley of the upper Kugart, his forethought relieved us of all care. On the last morning the road led up a long hard slope to Kugart Pass, 10,500 feet high. As we started, the interpreter, who now represented the Minbashi, repeated a warning which he had previously tried to impress upon us, — “Now that we are in the mountains you must not mention the name of Kugart Pass. If you do there will be a great wind and storm when we get there. Sometimes there is such a wind that men and horses are blown into the sky. After we cross the pass you can speak of it as badly as you like.” A Russian officer related another legend of the pass to the effect that a soldier was once crossing when the wind suddenly caught him and would have carried him away, but he seized a rock with his hands and fluttered like a flag in a breeze. On July 1st, when we crossed the pass, there was one of the perfect calms which often prevail on mountain tops, even when a good breeze blows below. Just at the summit a Russian peasant appeared with his Khirghiz wife, both on horseback, the man driving a flock of sheep toward Andijan, the woman carrying a baby. Intermarriage between Russians and natives is not approved of on either side, but it occurs more frequently than would be supposed, and doubtless helps to bring about an understanding between the conquerors and the conquered.

The crest of the pass is the boundary of the Kugart district. There we said good-by to the interpreter and his attendants, and turned our faces toward the great plateau of Tian Shan. The people of Turkestan, whether Russians, Sarts, or Khirghiz, had been most hospitable, and we were learning how much of good there is in all of them.



TERRACED MIDDLE PORTION OF KUGART VALLEY.
From a photograph by E. Huntington.

The Mountain as an Influence in Modern Life.

BY CHARLES E. FAY.

THE old saying "There is nothing new under the sun" seems to find an exception in our present subject. However many things the wise Solomon may have seen and declared to be an old story, we may rest assured that his eyes had never rested on a mountaineer in the sense that we are to employ the term, for the mountaineer is the product of comparatively recent times; in his complete development he is the product of the latter half of the nineteenth century.

What then is a "mountaineer"? Not necessarily a man born and brought up among the mountains, one who has always lived there. Indeed such a one, unless he has been subjected to unusual enlightening and cultivating influences, is most likely not to be the sort of a man we are speaking of. As a general rule those so born and reared care very little for the mountains themselves, just as the man who lives in a city cares and thinks little about the houses that go to make it up. He takes them as a matter of course. Nay, the mountain dweller may even look upon the towering masses that surround him as so much waste land, as occupying space that might otherwise come under tillage, and regret that their rough, steep sides render the fine timber upon them worthless, because they make it so expensive to bring it to the saw-mill. He may even wish them away.

Not so with that other mountaineer. Though he may live in the distant lowlands and see the mountains but rarely, he loves them as a boy loves some older friend whose noble character has been to him an inspiration, — who, as he feels, is bringing out the best that is in him. He loves the mountain for the wonderful story it tells him, for the grand anthem its forests sing to him, for the rich and varied gallery of Nature paintings that in sunshine and in storm, in the day-time and in the night season, it reveals to his eyes; and finally — yet by no means least — he loves it for the test of his bodily powers to which their conquest subjects him every time that, yielding to an irresistible longing, he undertakes the task of scaling their lofty summits.

I say this is "something new under the sun." Not but that men have not for ages been impressed with the grandeur and sublimity of these mighty shapes. Their kingly majesty, their strength, their seeming eternity have inspired poet and psalmist far back towards the beginnings of literature. What the modern age has brought to pass is a desire to know them intimately, and a willingness to seek that knowledge and intimacy at the cost of great effort, perhaps even with some degree of peril, for the mountain may, and not infrequently does, show itself as merciless as Fate.

Let us then consider in a few rapid outlines how and when and where mountaineering had its origin. The modern alpinist reading his Dante is constantly struck with the poet's practical knowledge of crag-climbing, though it is obvious that his experiences (acquired, doubtless, in the thirteenth century) were hardly pleasurable. Petrarch and later Leonardo da Vinci exhibit a more sympathetic attitude. The first bold ascent well recorded, that of Mont Aiguille in Dauphiné, was made in 1492, the year of the discovery of America. Sir Frederick Pollock, in an interesting sketch of the history of mountaineering,¹ — in which he is an expert — finds the first evidence of the existence of the genuine mountaineering spirit in the Latin writings of Conrad Gesner, a noted Swiss naturalist of the sixteenth century. Writing in 1541, Gesner begins a letter to a friend as follows :

Most learned Avienus, I have resolved for the future, so long as God grants me life, to ascend divers mountains every year, or at least one, in the season when vegetation is at its height, partly for botanical observation, partly for the worthy exercise of the body and recreation of the mind. What must be the pleasure, think you, what the delight of a mind rightly touched to gaze upon the huge mountain masses for one's show, and, as it were, lift one's head into the clouds. The soul is strangely rapt with the astonishing heights, and carried away to the contemplation of the one supreme Architect. . . . Philosophers will always feast the eyes of body and mind on the good things of this earthly paradise ; and by no means least among these are the abruptly soaring summits, the trackless steeps, the vast slopes rising to the sky, the rugged rocks, the shady woods.

¹ See *Mountaineering*, C. T. Dent and others. Badminton Library, London. Longmans, 1892. See also *Josias Simler et les Origines de l'Alpinisme jusqu'en 1600*. Grenoble, 1904.

Fourteen years later he describes an ascent of Mt. Pilatus, a well-known minor peak near Lucerne, now crowned with hotels and reached by a cog-wheel railroad. It was doubtless the highest summit attained up to that date. His language betrays all the enthusiasm of a twentieth century Alpine Club man as he describes the sights and sensations, the hard toil and its delightful recompense. He concludes in these words: —

Give me a man of reasonably good complexion in mind and body, of liberal nurture, not a slave of indolence, luxury, or passion; I would have him likewise a curious admirer of nature, so that by beholding and admiring the mighty works of the Master Workman, and the variety displayed in one mass among the mountains, delight of the mind should be added to the harmonious delight of all the senses; what entertainment, I ask, can you find in this world so high, so worthy and in every respect so perfect?

As one reads these words and learns that other men of note, his neighbors, shared these sentiments with Gesner, it might seem strange that mountain-climbing as a recreation did not come into vogue in the sixteenth century. But the "fulness of time" was not yet come. It had a long while still to wait. Apparently Gesner did not carry out his worthy resolve to climb divers mountains every year, or even one. In any event, no Swiss mountain, even of the second class, no peak permanently snow-clad, was climbed until nearly two centuries later, when in 1739 the Titlis (10,627 ft.) was successfully scaled.¹

But we are now well toward the middle of the eighteenth century, a century characterized by extraordinary intellectual activity, and one notable also in the history of man's emotional nature; it is credited with having witnessed the development, in a sense, of a new sentiment.

We are all so familiar with the phrase "the love of nature," that we can scarcely conceive that there ever was a time when it had no place in the language of civilized men; but it really is quite modern. Up to the middle of the eighteenth century it was a thing unheard of, — I do not say unexperienced, my quotations from Gesner would disprove that — but it was at least something uncomprehended and unformulated. An increase of

¹ The ascent of the Titlis, although requiring considerable perseverance, is perhaps the least difficult of all glacier excursions.— BAEDEKER.

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Interest in the study of the natural world, occurring at the same time with an immense development of sentimentalism that swept like a tide over Europe, formed the happy conjuncture from which it sprang to consciousness and asserted itself among man's recognized capacities.

Do not think me contradicting former statements as to the unsusceptibility of mountain-dwellers, when I cite two illustrious men of Swiss birth as having done more than all others to give expression to this sentiment and to win for it recognition. They were natives, it is true, of a land famous before all others for its mountains, but both were city-born, — the one in Berne, the other in Geneva, — in other words, impressed by the mountains yet not through immediate contact with them. I refer to Albrecht von Haller and Jean Jacques Rousseau. Neither was a practical mountaineer in any sense of the term. Haller, like Gesner, the most learned naturalist of his time, and in his earlier manhood a poet of distinguished merit, sang the praises of Nature in his verse. "The Alps" was the title of his most noted poem. Rousseau, the author of *Emile* and *La Nouvelle Héloïse*, and to whose writings on the relation of man to the State our patriot sires of '76 owed much of the inspiration embodied in the Declaration of Independence, gave a full expression and a far-reaching voice to this then newly recognized sentiment, which since his day has permeated all European and American literature. In this general increase of interest in the world outside ourselves, the mountain, as one of the most impressive features, naturally came in for a large share of attention. The travellers from other lands who hitherto had visited Switzerland chiefly for its lake scenery now began to look with interest and delight upon its mountains also.

In 1741, slightly previous to the dominance of Rousseau's influence (1760-70), two men of the nationality destined to become most distinguished in the annals of mountaineering, two Englishmen, Windham and Pococke, penetrated to the now much frequented valley of Chamonix, upon which Mont Blanc looks down, visited the glaciers, and wrote an account of their visit, calling attention anew to these little understood sluggish rivers of ice. But even then no one thought of such a thing as setting foot on the crown of the "monarch of mountains." It

was not until thirty-four years later — the year of the battle of Lexington — that the first serious attempt was made to ascend Mont Blanc, and eleven years more elapsed before the enterprise was successfully accomplished by Jacques Balmat, a native of Chamonix, in 1786. The following year he guided to the summit the Genevan naturalist, De Saussure, who had stimulated him to find out a feasible way of ascent, and this ascent of De Saussure in 1787 is generally regarded as the initial event of the history of modern mountaineering. That, beside his scientific interest, he was impelled by the same sentiment as to-day inspires unscientific men to similar enterprise is testified by his diary. In his report of his ascent he says: "We now returned to Geneva, whence I was able to look upon Mont Blanc with a real delight, and without that sentiment of unrest with which it had hitherto inspired me."

The conquest of this, the highest, yet by no means one of the most difficult, of Alpine peaks, found in the succeeding years its emulators both upon Mont Blanc itself and upon a few other giants, such as the Jungfrau and the Finsteraarhorn; but these high ascents were infrequent and exceptional even throughout the first half of the nineteenth century. Illustrious names are connected with these preparatory years, none more so than that of Humboldt, who in 1802 made a partial ascent of Chimborazo. To quote again from Sir F. Pollock: —

The work of the first half of this century was to prepare the way for modern mountaineering; the critical impulse was yet to come. It came within a few years in a series of independent adventures undertaken by Englishmen. Among these the ascent of the Wetterhorn from Grindelwald in 1854 by Mr. Justice Wills, the final conquest of the highest peak of Monte Rosa in 1855, the ascent of Mt. Blanc without guides in 1856 hold the foremost place. Mr. Wills's brilliant Alpine descriptions, both in his "Wanderings" and in his later volume "The Eagle's Nest," were doubtless a potent factor in turning the energies of English vacation tourists in this direction. At the same time Hudson and Kennedy's account of their triumph over professional routine on Mont Blanc put an end to many vulgar errors, and Hudson and Smyth's unaided discovery of the true way to the Dufourspitze of Monte Rosa completed the proof that the traveller's part was not one of mere mechanical effort. Henceforth the amateur was to have a direct share in

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Alpine enterprise, and at need he might be independent. In one word, the spirit of Conrad Gesner lived again.

Next in order came the founding of the Alpine Club in London in 1858, and the publication in 1860 of a volume of narratives by certain of its members, entitled "Peaks, Passes and Glaciers," — the first classic work of a large and rapidly increasing body of mountain literature. A few words from its preface will appropriately close the consideration of this portion of our subject. The editors say : —

Of late years an increasing desire has been felt to explore the unknown and little frequented districts of the Alps. The writings of Professor J. D. Forbes, those of M. Agassiz and his companions, and of M. Gottlieb Studer, led many in whom the passion for alpine scenery was blended with a love of adventure and some interest in the results of mountain travel, to strike out new paths for themselves and especially in the higher snow region which had before been almost completely shunned by ordinary travellers. Practice soon developed the powers of those who undertook such expeditions; experience showed that the dangers connected with them had been exaggerated, while at the same time it taught the precautions that are really requisite. The result has been to train up among the foreign visitors to the Alps, but especially among our own countrymen, many men as familiar with the peculiar difficulties and risks of expeditions in the high Alps and as competent to overcome them as the best guides. . . . It has been perceived that the community of taste and feeling among those who in the life of the High Alps have shared the same enjoyments, the same labors and the same dangers, constitutes a bond of sympathy stronger than many of those by which men are drawn into association, and early in 1858 it was resolved to give scope for the extension of this mutual feeling amongst all who have explored high mountain regions, by the formation of the Alpine Club.

In these words are formulated the reason for being, not only of the English Alpine Club, but of the numerous similar organizations that have since sprung up in all civilized lands, until to-day not less than one hundred thousand persons, men and women, are enrolled in associations whose aim is to cultivate the love of the mountains, and increase the maximum of the world's rational and uplifting enjoyments by the fostering of mountaineering. Their activity is attested by the fact that no peak in all Europe

is so difficult but man has set foot upon it, and new worlds to conquer have been opened up in the Caucasus, in the Himalayas, in New Zealand, and most recently in British Columbia and Alaska.

Between the lines of this brief summary of the history of mountaineering, you have constantly caught sight of the answer to the question: "What is there in the mountain that appeals to the man of modern times, and especially to the man of the present day?" It will not be strange if you also see why the mediæval man was less susceptible to its "fascination," for no term less strong can adequately characterize its well-nigh irresistible attraction. The mediæval man was, we are told, far less differentiated from his fellow man in his mental and moral qualities than is the man of more recent times. The rise of free thought, the spirit of the Reformation, fostered individuality and with it the tendency to broaden the field of one's personal knowledge and experience. It fostered in the individual the spirit of conquest which hitherto had been the characteristic of the exceptional ruler in the body politic or the church. Individuals began to think for themselves, to speak for themselves, to see for themselves. Science became possible, the exploration of the unknown world inevitable. Part of that unknown world lay beyond the seas; another part, veiled in a mystery almost as profound, lay above the clouds amid the silence of the eternal ice and snow.

It is interesting to note that nearly every one of the advantages that would to-day be claimed for mountaineering is set forth by Gesner in the latter of the two passages quoted. The claim of its votaries that it is the noblest of sports can be no more emphatically asserted than in Gesner's phrase, "What entertainment can you find in this world so high, so worthy, and in every respect so perfect?" Neither can you find a better specification of the ideal mountaineer than that which he modestly sums up: "A man of reasonably good complexion of mind and body [a capable man], of liberal nurture [an educated man], not a slave of indolence, luxury, or passion [a clean, abstemious, energetic man]." He would have him also "a curious admirer of nature," the man of open eyes, with something of that power of observation which is the prime requisite in the

oriental: he would have him a religious man withal, "so that by watching and admiring the mighty works of the Master Workman, delight of the mind should be added to the harmonious delight of all the senses." All seems to be stated here save one thing, a lover of permissible conquest — an enterprising man — and even this may be said to be present by implication. Every side of our human capacities is included: the moral side with the intellectual, the physical; hence, assuming the mountain's availability, the corollary: that the mountain presents to the human mind that which nurtures the sense of the sublime, of the beautiful, of the true, while it offers an inducement for the development of the body, to which may be added the nurture of those traits of character which one would wish to see constituting a perfect physical man, — namely, courage, caution, judgment, honesty, kindness, fair play.

That modern life stands in especial need of influences of this sort needs no argument. In an age when the struggle for life has become so bitter, when the ideals of the past are losing their hold, when religion, however we may seek to flatter ourselves, is becoming generation by generation a less potent influence upon the actions of men, when it is a mooted question as regards art and literature whether their mission is to delight man while they uplift him and not rather to amuse and surprise him even while they present matter calculated to depress and corrupt, we need something tangible, as it were, which, by its inherent majesty may speak for the superhuman, — of power in comparison with which man's is weakness, of an eternity which man would only deserve to share as his nature was in consonance with glory and dignity which the mountain, in company with the starry sky and the infinite ocean, discloses and maintains through the infinite ages.

Fortunately, to enjoy these benefits one does not have to become a strenuous mountaineer. Indeed I might in frankness go a little farther, and say that I am sometimes a little uncertain whether the increase in familiarity does not diminish in some degree the power of the mountain to stir the unalloyed sense of sublimity. The intimate acquaintance with far loftier peaks has robbed for me our New Hampshire mountains of much of their impressiveness. I long sometimes for a return of that profound impres-

sion by my first view of grand mountain forms near at hand. It was in my earliest visit to the White Mountains. I entered the Conway intervalles on foot, and saw majestically piled in the northern horizon those huge granite domes half veiled in the added mystery of the afternoon haze, mountains whose mere names were to me as yet unknown. Only the view of an Himalayan sunrise from Darjeeling can again stir me so profoundly. I listen far less with amusement than with envy to the ecstasy of those who are stirred to enthusiasm by the striking outline of Mt. Chocorua, whose ridges and ravines have become to me opened secrets. I still remember how unspeakably I was moved by my first near sight of it. We had been travelling the road northward from Centre Harbor one cloudy, sultry July day, and all day long had gained no glimpse of the peak. Towards evening the clouds that had so persistently hung about the Sandwich summits grew more sullen and took on the form of portentous cumuli, from whose depths the thunder muttered from time to time. Our road was climbing a great hill which faces Mt. Chocorua just across the intervening valley, but so far as we were concerned the peak might have been on another planet. The imminence of the tempest led us to pitch our camp with all haste, just as we had reached the height of the way. This done, we sat in the door of our tent to watch the storm. You know the grandeur of a thunder-storm in the mountains. This was one of the grandest. But the supreme moment came when suddenly the wild, black tempest-clouds parted and revealed the weird, rocky peak in unspeakable grandeur, standing out against a lurid background of rain-cloud illumined with ghastly, yellow light. Only very rarely in my many excursions to far higher peaks in different lands has that impressive moment been paralleled.

Scenes of this nature are always to be experienced in such surroundings. I consider it therefore a fortunate circumstance that year by year many of our countrymen, as indeed the people of all lands, find their way for longer or shorter sojourns to the mountains, or to places from which their impressive forms are visible; for, though not all may be Wordsworths, there are few persons so unsusceptible as not to be stirred in their souls by unusual grandeur, and he who has been once so stirred can

never be wholly without a testimony within him to the existence of something higher and worthier than the petty things of everyday life.

Yet while I allow this moral stimulus to be the highest advantage that the mountain can confer, and the one likely to affect the larger number, I should not be doing my duty to my convictions if I did not take advantage of this, as of every opportunity, to urge other important aspects of the question, certain very practical advantages to be derived from an increase of popularity in actual mountaineering, of the kind involving hardship and doubtless an appreciable element of risk.

It is by no means a matter of indifference what shall be a people's national sports. They are doubtless largely determined by such factors as racial traits and historical traditions. If bull-fighting is the national sport of Spain, perhaps it is to be regarded less as a proof of native hard-heartedness and brutality than that the fondness for gladiatorial combats has persisted longer in Spain than among other Latin peoples. If foot-ball is a vigorous rival with baseball for recognition as a national American game, perhaps it is an evidence of the fact that we of Anglo-Saxon antecedents are less impressed than some other nations of the inviolable dignity of one's person, particularly if one be a gentleman. I once took a visitor, a captain of engineers in the Spanish army, — a man of war from the land of bull-fights, — out to see a practice game of foot-ball upon our college campus. He soon turned aside with the remark, "It is too bad to look at." How much depends on one's point of view!

Neither bull-fighting nor foot-ball is *per se* particularly refining, but it is easy to say which has the higher educative value. Divesting each of the repugnant features that persons of the other nationality see in it, we discover that while both involve the elements of skill and dexterity, bull-fighting lacks the element of fair play and the assumption of any considerable personal risk. A trained human expert against an untrained novice of a brute is an unfair advantage. The sight of such encounters would cultivate regard for adroitness rather than courage. Foot-ball, honorably conducted, appeals to the sentiment of fair play, while it nurtures a contempt for physical pain and possi-

ble injury incidental to a rough game. Yet dishonorable football could not but have a decidedly worse effect than bull-fights upon those who participated, and be exceedingly demoralizing to the public, if recognized and condoned by the spectators.

It is an interesting fact that no form of sport, unless it be bicycling, has appealed to so many different races as has mountaineering. Begun by the English, it has been adopted in every European country, as also to a limited extent in our own. Indeed in Switzerland, in France, Italy, Germany, Austria-Hungary it has become far more popular than in England itself, where it has rather been the aristocratic sport of the few. Leisure and means are requisite to pass from England to alpine lands, so the Alpine Club has always been a very select body. A few hundred members constitute it. In the clubs of Continental Europe, the enrollment is by thousands, and, while the average of ability in mountaineering would be comparatively low, the total number of highly trained mountain climbers on the Continent is large. They belong to every social rank. In Italy the royal family contains some most enthusiastic lovers of the sport. The popular queen-dowager Margherita climbs the highest Alps for her summer pastime. The king's cousin, Prince Luigi of Savoy, accomplished in 1897 one of the most arduous and enterprising of tasks in attaining the summit of Mt. St. Elias, and the following year, as a natural sequence, fitted out a polar expedition, which surpassed the achievement of Nansen, and now holds the record of "farthest north." Whatever opinion one may have of the utility of a quest for the Pole, there can or ought to be nothing but admiration for a young man of the highest rank and enormous wealth, who in an age of comfort rises superior to the temptations to luxury and effeminacy and subjects himself to deprivations and hardships in an impersonal struggle with the forces of Nature.

I have touched in this last sentence the very essence of the sport of mountaineering, — an impersonal struggle, a struggle with the forces of Nature. In another place I spoke of permissible conquest. This element of conquest gives to mountaineering its zest. There is in every active man conscious of the possession of powers that which longs for something on which to exercise them. It is the wish to overcome, not so

much for the conquest as for the conquering. Misdirected, it makes of the boy a bully, of the man a "jingo." Wisely guided, it may develop the scientist, the discoverer, the statesman, the patriot soldier, and certainly the good citizen.

Often in the years preceding our Spanish war, little dreaming that all that the United States has done for the cause of international arbitration would be seemingly annulled, not so much by any reversal of opinion as by the asserting of the ideals of another portion of our people, I have argued thus: War is becoming obsolete. War has in every age, despite its horrors, been the nurse of virtues which nations cannot afford to let disappear, and especially of personal courage and self-reliance, of contempt for ease and luxury. To foster them by other means is called for by the highest expediency. A means to this end are all manly sports and recreations. Of these none has so much in its favor as mountaineering. The very absence of the personal element lifts it above other contests; its victories can excite no hatred, no envy, no jealousy; their quest can foster no meanness nor underhanded ways.

Consider in a concrete case the character of the struggle. A virgin mountain is to be scaled. There is your adversary, and a task to be accomplished which demands endurance, strength, sagacity, caution. Days in advance you encamp before it, as it lifts its snowy citadel far above the rocky escarpments of its base. Crevassed glaciers are the concentric moats about it; shattered arêtes lead upwards towards the wished-for goal. No one has ever traversed them; no spy nor traitor can tell you where, if anywhere, an attack will succeed. You study it with your glass in varying lights. What in the morning light seemed feasible, the afternoon light reveals as an impassable buttress. At length a probable way of circumventing these varied obstacles is planned, and the morrow is set for the assault. You rise, with sleep still in your eyes and soul, in the earliest morning starlight and go forth into the chill air. Like enormous phantoms the snow-clad peaks hover in the vague illumination. Lighted by a feeble candle, you enter the forest that drapes your mountain's base; with this lantern you make your way among the obstructions of boulder and fallen tree-trunk; under its flickering gleam you force a passage of the glacial torrent; soon, in the open,

you extinguish it and take your course in increasing daylight to the glacier's foot. Arrived here, you pause, perhaps, to watch the first burst of sunlight, flushing the dazzling summit, that now more than ever lures you on. Pausing upon the ice, you assume the rope, its loop at your waist binding you, for safety or to succor, to your companions. Snow-covered crevasses lie athwart your path. One after another, with everything prepared for the collapse of the treacherous bridge, you cross them. An unbridged abyss yawns before you; you circumvent it; then comes another which you cannot avoid; you find its narrowest part where you may descend into it a little way, then cross it by the step cut with your ice-axe on its farther wall, and mount by a series of similar steps to the opposite margin. While one moves all the rest are motionless and solidly anchored, as in every critical place during the ascent. You reach the pass, from which the final peak towers — a sheer slope of snow and ice interrupted only by treacherous ledges two thousand feet above you. You begin the toilsome slant; so long as it is hardened snow you drive the toe of your heavy hob-nailed boot deep into it, each following in his predecessor's footsteps; when snow turns ice, footsteps have to be cut, and each as he passes adds his contributory nick to deepen them. Traversing the steep ledges with their loose stones, infinite care is taken not to dislodge them, to descend upon those below you. As you draw nearer your goal, the difficulties increase. The steep slope of 60° , ice though it be, glows like a furnace as it reflects only two feet from your face the intense rays of the August sun. Now comes a *crux*: you must pass under an overhanging crag around whose base the snow is wreathed in a treacherous-looking cornice. Along that cornice you will have to go on hands and knees, for there is scant room between snow and rock. It proves to be solid, so the passage is feasible; one by one the party pass it in safety. Then more snow slopes, more steep rock faces, and you draw near the longed-for goal. You reach the upper crest and gaze over into the tremendous spaces beyond. Yonder is the actual summit, a few rods away on the right. Between you and it the winter snow, swept upward by the wind, has formed an outward reaching cornice fifteen or twenty feet in width. It overhangs a precipice four thousand feet in depth. Keep well

back from it, for such inviting levels have sent to their death all too many ignorant or careless climbers in the very hour of victory. You pass cautiously upon the solid mountain, avoiding the treacherous shell, and in a moment more have conquered your Lefroy.

I need not say that it is not my purpose to represent the lover of these experiences as a hero; as little would I permit you to cherish without protest the inference that he is foolhardy. Valuable lives, only too many, have been sacrificed in these undertakings; but of what sport may not the same be said,—of riding, sailing, swimming, skating, nay, even dancing. The unfamiliar character of the sport, and too often the nobility and worth of the victim, perhaps call attention unduly to the attendant risks. To assume risks, and especially unnecessary risks, does not constitute the hero; to avoid every form of risk is excellent training for a coward. To recognize dangers, to study them in their every aspect, to provide means for removing them or reducing them to a fairly negligible minimum, and then to proceed with infinite caution to carry out the enterprise, not over-confident, not over-persistent, but always ready to turn back whenever the element of danger foreshadows disaster, seems to my mind a proper and effective education for those on whom large responsibilities are to rest. And in a republic who may not these be?

The Register Cylinders of the Club.

BY RAYMOND M. DOW ADAMS.

Read April 18, 1905.¹

* * * * *

THERE seems to be in humanity an inherent desire to record things. To cut, carve, write, print, stamp, stain, mark, dot, or engrave one's name on all substances, movable and immovable, seems to be an almost overwhelming passion of youth. Possibly this may be but a development of the sense of satisfaction in accomplishment. We make a discovery, or finish a worthy task, and we set it down, erecting a memorial, though

¹ See Proceedings, page 92.

it be only in writing. Free from improper egotism, we properly rejoice in a deed well done. We climb a mountain, and write our name there; we are glad, and we should be. It seems difficult for some to learn not to write their names where they ought not; but in the place provided, a neat record becomes a thing of real utility and a pleasant memorial of an accomplishment.

The first placing of a register on a mountain top of New Hampshire, that I find recorded, was the act of Benjamin Osgood, who placed a roll, probably in a bottle, on Mt. Adams, on August 12, 1854. Twelve years later, in 1876, it is said to have contained twenty names. At the present time, about the entire capacity of a roll of the style now used is required each year—a matter of several hundred! That very interesting book, “Mt. Washington in Winter,” the account, journal, and history of the scientific party which spent the winter of 1870–71 on the summit, tells us that certain members of the party, Messrs. Nelson and Holden, crossed to the summit of Mt. Adams, and registered there by scratching their names on a sardine box, which they said appeared to have done duty as a “visitors’ register for nearly a dozen years.” Elsewhere I have read that for a time a sheet of lead once served such a purpose. I find it recorded, in the roll placed on Mt. Adams, July 22, 1876, that W. G. Nowell, with the party building Lowe’s path, on that date placed a new bottle; and the roll placed August 23, 1877, states that this bottle was then replaced by a Club cylinder. The succeeding rolls on Mt. Adams appear in good and satisfactory sequence ever since, though their history is marked by one startling event: in June, 1894, the cylinder was struck by lightning and destroyed. A new one promptly replaced it. It is recorded, on this substitute roll, that a small party suffered somewhat from the shock of that stroke.

During and after 1876 the placing of rolls became more common, though it was some years before many were in use. Mt. Madison appears to have received its first that year; and I find record of the placing of some others soon after, as well as later, on points where they have not been continued.

During the past winter examining several of the collection of rolls at the Club rooms, and finding them, when full and tightly

curled, a difficult thing to enjoy, I asked the privilege of examining, repairing, straightening, and filing in alphabetically indexed envelopes all rolls in possession of the Club. The result of my work may be seen at any time, as they are readily accessible on application to the custodian. Any roll, of any date, may be found at once, and if reasonable care be exercised in replacing it after inspection, this ease and accuracy may be permanent. The work was a great pleasure; I examined them all carefully, and the greater number, especially those of the last few years, I read practically word by word. I have followed trampers from height to height; year by year I have noted their return to the summits; following them on and recognizing the handwriting, all over the region, I have personally made a sort of chirographical tour. The recurrence of the handwriting and the time data recorded have been very interesting. And then what a thrill of delight, to sit by one's desk in January, and find one's own name on the page! How the incidents of the tramp are freshened and colored anew in one's memory! The little details, the search for the cylinder, the mental judgment of the pencil point, the selection of a suitable spot, the inspection of one's watch, to record the exact time, and then the act of signing — how the memory vibrates with joy, and then opens suddenly on the recollection of the tremendous view. Perhaps it was before sunrise on Madison (I have known much to be the case), and after signing the roll, you half shivered yourself into a cleft among the rocks, and watched the clinging billows of the morning fog roll and tumble along the Androscoggin valley, with here and there a strip of woodland rising through the fog like a sharp promontory from the sea. Your thoughts should be of noble things, and take even a more solemn turn at a glance back of you, where the gray clouds rifted and muddled among and over the jagged battlements of Mt. Adams. And then came the sun, the pouring in of life to the new-born day. The names of friends or of schoolmates wander out from the host of signatures in the rolls, and greet you for a moment like voices in the night. You find their owners have been where you never suspected. And all along these memory journeys you find "the wind is blowing," ever surging in emphatic descriptions thereof, as it does in reality over the mountains.

Hardly had I read half a dozen rolls before I noticed that each party, referring to the weather, seems to think it has experienced unusual wind. The force of the wind is rediscovered daily. This rather amused me until I found my first Madison registration, where my own signature was followed by the heavily underlined statement: "*Wind fierce.*" And I assure you it really was.

It is a difficult matter, in arranging what seem to me to be the items of especial interest, to follow an order of consecutive relationship, so I will take them up like beads on a string, all different, perhaps, but bound together by one tie, the general subject.

The animal life mentioned or referred to is various and rather amusing. On the rare occasions when a calm is recorded, the flies are frequently described in strenuous terms. They seem to be especially numerous in July and August. Several times records of "red squirrels" appear. One is said to have been seen "within fifty feet" of Mt. Adams' summit. I have seen a weasel on the tip of Mt. Madison, and venture to suggest that if these "high-minded squirrels" had lingered to be identified, they might have been declared the same. Bears are reported from Mts. Madison and Passaconaway. In 1880 two were seen on Mt. Adams. Also, in 1898, one was seen on Mt. Washington, from Mt. Adams. (Rather a long distance to recognize the "lonely tourist.") Pointed references are made to the hedgehogs, and with good reason. Though I have not encountered any myself at Madison Hut, Hermit Lake Camp has been to me the scene of certain interesting and somewhat exciting episodes. I once met a man, who talked of "come-at-a-body's," an uncertain and fabulous sort of creature, seemingly famed for making curious noises. No other record is in evidence of their having been observed. Equally apocryphal appears to be the "ding-wall."

Frequent references to the cloud conditions show much travelling in obscure weather. A little more caution appears advisable.

The desire to make record trips and travelling at speeds inconsistent with proper appreciation of the view and the peculiar charms of these lofty trails are apparently common faults.

The number of ascents one has made is generally of small

interest to record. One man writes the "n + 1th ascent," which ~~casts~~ a clever reproof on preceding unnecessary entries.

Very frequent are notes of thanks to the Club for trails, camps, etc.

There seems to be a prevalent idea that the rolls are to a great extent filled in with nonsense and absurdities. But with the exception of certain mountains, the proportion of foolishness is exceedingly small. The extravagant use of space in making the records too long is the chief fault. Of course the literal truth of many entries may be questioned, some may be discovered to be meant for jokes, some are simply silly, and raise the question as to just why their writers cared to make the ascent, since (though we may misinterpret their characters) they seem to have had little appreciation of what they came for. The lower mountains show the worst offenders. The records from Moat Mountain contain a great deal of thoroughly uninteresting and trivial detail. The delineation of the well-known paths, even from the hotels at Intervale, and what happened on the way, and what the party had for lunch, are of no interest whatever. One also fails to find any inspiration to noble thoughts in reading after a man's name that he is a manufacturer of lunch-carts, together with a list of cities and the number of his carts in each. Perhaps an occasional quotation may be proper, but to countenance it in one case is to establish a dangerous precedent. Original verses on cylinder records are to be condemned. If, however, people must add rhyming effusions, we implore them to obtain first at least a vague idea of rhythm.

Records or quotations are to be found in English, Latin, Greek, French, Dutch (or some kindred tongue), and in a certain cipher, also in shorthand. These are inscribed in ink of varying shades and degrees of water-proofness, pencils of different colors, by (apparently) match stubs, a pin-point, and in blood.

Following Moat Mountain in the list of offenders, and as yet more guilty of perpetuating useless trash, Osceola and Sandwich Dome stand preëminent. In one case, a roll from Sandwich Dome became quite intolerable. It would be, indeed, an omission to pass over reference to the signatures of

W. B. Curtis, A. M. C.

Allan Ormsbee, June 26, 1900.

By bearing these names upon its roll, Sandwich Dome redeems some of its nonsense. A register from Hermit Lake Camp gives us an account of their sad history, and a roll from Mt. Pleasant bears the copy of their last signatures. The originals were otherwise preserved.

I would inquire, merely to raise the question, whether the discontinuance of the cylinders on the mountains mentioned might not be advisable, at least for a time. Also, whether the great number of bulky records made on Mt. Adams, though of a specially high grade, would not suggest the desirability of placing a roll there on alternate years only.

Very few rolls have been placed outside the mountains of New Hampshire. One placed on Mt. Marcy, on August 23, 1898, bears the statement that it was the first to be located in the Adirondacks. The existence of a well-preserved roll, placed on Mt. Dix, bearing the date 1889, contradicts this claim, and appears itself to have been the first. A few rolls, some being of the early, long, thin type, have been returned from several Maine summits.

The following list is approximately correct, though it is hard in some instances to determine whether one is dealing with an entire roll or with fragments. I give the date of placing of the oldest existing rolls in each case, when known, and of the latest ones returned. The years intervening are not in some cases fully covered.

LIST OF ROLLS (AND BOOKS) RETURNED BEFORE 1905.

<i>New Hampshire :</i>							Rolls
Adams	.	.	.	.	.	1875-1903	14
Baldface	.	.	.	.	.	-1883	1
Carragain	.	.	.	.	.	1879-1880	3
Carter Dome	.	.	.	.	.	1876-1900	3
Castles (on Mt. Adams)	.	.	.	.	.	-1893	1
Hermit Lake Camp	.	.	.	.	.	-1900	1
Iron	.	.	.	.	.	1876-1882	1
Jefferson	.	.	.	.	.	1885-1900	6
King's Ravine	.	.	.	.	.	-1876	1
Log Cabin (W. G. Nowell's)	.	.	.	.	.	1894-1898	2
Liberty (roll lost ; scraps only)	.	.	.	.	.	-1885	1
Lowe's (?) Camp	.	.	.	.	.	c. 1879	1
Lowell, cover only	.	.	.	.	.	?	1

Madison	1876-1903	9
Madison Spring Hut	?-1889	1
(Also 4 record-books to 1904.)		
Moat (N.)	1876-1903	5
Moriah	1883-1898	2
Nowell's Peak	-1898	1
Osceola	1879-1900	6
Passaconaway	1893-1900	2
Pangus	-1900	1
Pleasant	-1900	1
Sandwich Dome (called also Black Mt.)	1879-1900	7
Tecumseh	-1879	1
Tripyramid (S.)	-1879	1
Twin (N.)	-1882	1
Washington, Refuge, 1 book.		
Whiteface	1896-1901	3
Willey	1879-1896	2

Total, 79 rolls; 5 books.¹

Maine:

Bigelow	1891-1900	4
Kineo	-1879	1
Snow (reported, but lost).		<hr/> 5

New York:

Dix	-1889	1
Marcy	1888-1897	4
		<hr/> 5

Grand total, 89 rolls; 5 books.

Cylinders had been placed previously on Mts. Monroe and Lafayette, and in September, 1904, were in good condition; but the roll on Mt. Lafayette should be replaced as soon as possible. None appear to have been returned from these summits.

From the examination which I have made, I find that it is well to follow certain principles in entering the record. I disagree with some who have written a request to go straight through the roll, using one side of a leaf only, then turn over and go back to the front; or to write on both sides from start to finish and always from the binding toward the end of the leaf. The former method is not bad if people would observe the request and follow it, but they do not do so. The second method

¹ Besides these there are also various scraps and bits of paper that have been left in cylinders. The "Refuge" book is in poor condition, and greatly taken up with trivial nonsense.

sounds well, but makes later inspection very awkward and inconvenient. The best way seems to be to go down the page to the end, then turn and go from the end toward the binding, and on to the foot of the next page, then turn, and proceed in the same way. This method suggests itself as natural, and is really found more commonly to be the way employed.

In view of my unusual experience with this form of literature, a few notes of instruction or even warning may not seem presumptuous. Let the entry be written clearly, briefly, and with no useless information. The date, name, address, and, in some cases, note as to weather, route, and travelling time, are enough. The date, if found with a preceding entry, may well be omitted. The route about to be taken is perhaps of some interest, especially on unusual paths. If a member of the club, it is well to sign "A. M. C." after your name.

In placing a roll, it is well to date it in a waterproof or other very durable ink; but never make records in ink unless sure of its quality, for if they get wet, they not only become effaced, but damage others.

Be sure to leave the cylinder safely closed, and placed where easily found and not easily dislodged; and wherever you go, never pass a cairn in bad condition without setting it up.

To the best of your ability coöperate with the Club in returning full rolls and placing blanks; but never, without some special reason, return a roll or book unless it is full or nearly so, and not likely, otherwise, to be promptly replaced. Report anything found seriously amiss. And when you can, assist in placing cylinders on unoccupied spots which are of sufficient note to make it worth while, especially on high and seldom visited peaks. In this case erect a large, carefully built cairn, if possible.

Not only do the registers of our Club serve the instinct to record our achievements, but they are otherwise of real use; they indicate what summits are most frequently ascended, and thus what paths it is of greatest importance to keep in good repair. They are interesting to all trampers and mountain lovers; and they may be of value in cases of accident, as the Mt. Pleasant roll might have become, bearing Curtis's and Ormsbee's last signatures.

The American Alpine Club.

IN 1902 a movement was started in Philadelphia to create a society differing in some respects from all the existing mountain clubs of Europe or America, yet approximating most nearly, in so far as its standards were concerned, to the original Alpine Club founded in London in 1858. To the mountaineering interest, which it placed foremost and emphasized in the Society's name, it added the kindred fields of arctic exploration and the study of recent glacial activity, thus combining the various interests attaching to snow and ice, whether at high altitudes or at sea level, and whether as factors in modelling the surface of the globe, or as a stimulus to human energy and endeavor. To quote specifically from its By-Laws : —

The objects of the Club shall be the scientific exploration and study of the higher mountain elevations and of the regions lying within or about the Arctic and Antarctic Circles ; the cultivation of the mountain craft ; the promotion and dissemination of knowledge regarding the regions above indicated. It shall for its primary work undertake the study and elucidation of the high mountains of all America, gathering in the facts and phenomena pertaining to them, and shall at the earliest time practicable (but not before the funds of the Club fully warrant such undertaking) publish a systematic illustrated work on these mountains, to the end of presenting a complete monograph of the Alpine mountains of the Western Hemisphere. This By-law shall not be construed as restraining the Board of Directors from undertaking such other minor publications as may seem to them desirable.

The energy of the prime movers, men well known in geographic circles, succeeded in at once enlisting nearly forty members, who became the "founders" of the American Alpine Club. The majority of these, dwellers for the greater part in the cities of the eastern and western seaboard of the United States, were, as might be inferred, already enrolled as active members in existing societies, yet they bated nothing of loyalty to these by reason of their new affiliation. Thus, of the present membership of sixty, no less than twenty-eight are enrolled in the Appalachian Mountain Club, either as honorary, corresponding, or corporate members, and of its board of nine

Directors all but one are our fellow-members by one or another of these titles.

From the by-law quoted above it appears that the principal expression of the new society's activity is to be through publication. The wide geographical distribution of its members precludes frequent meetings, — indeed a single meeting each year is all that is expected or provided for. One of the earliest committees to be created was therefore one on Publications. Its members were soon impressed with the impracticability, as well as the undesirability, of dividing the resources of the Club by the publication of a serial bulletin, such as is foreshadowed in the last clause of the quoted by-law. The unique larger enterprise — the gradual publication of a uniform sequence of handsomely illustrated monographs — called for a husbanding of means. Yet valuable papers hardly suited to such a series were sure to be prepared by members of the Society, which certainly should be preserved in permanent form and in a way to reflect honor on the organization to which in part they owed their birth. The idea naturally arose of forming an alliance with some existing Society with a well-established magazine, in which could be published such special papers and perhaps pages of minor notes of interest to mountaineers, explorers, and glacialists.

We may regard it as a compliment that recourse was first had to our own Club, and overtures made to secure admission to the pages of APPALACHIA for such material as would naturally find a place in a general bulletin. After favorable discussion in the Publishing Committee and the Council a special committee was appointed to arrange details. Formulated and embodied in an agreement, these were submitted to the officers of the American Alpine Club, by whom they have been accepted, and APPALACHIA thus becomes the official organ of the American Alpine Club. The valuable paper by Professor Harry Fielding Reid of Johns Hopkins University, a leading American authority on glaciers and a corresponding member of the Appalachian Mountain Club, is the first fruits of this promising coöperation.

Many years ago Mr. Samuel H. Scudder, the first vice-president of our Club and the actual founder of APPALACHIA, suggested the introduction into our journal of a department of

that notes to be headed "Alpina." Various circumstances have hitherto hindered the adoption of this valuable suggestion. The earlier appearance of such a feature now seems assured, for one article of the adopted agreement provides, —

That a series of notes bearing the heading "Alpina" and severally signed, when desired, may form a feature of this publication — the same to be prepared by a member of the American Alpine Club, yet subject to the revision of the Editor of APPALACHIA.

Inasmuch as it is hardly conceivable that any articles that would be of interest to members of the new Society would not be equally interesting to the members of the Appalachian Mountain Club, it is probably not too much to assume that the latter will be the chief beneficiaries of the new alliance and will therefore heartily join in a wish for the long continuance of this amicable arrangement.

Our Frontispiece.

OUR fellow-members, and particularly those who were so fortunate as to be present at the meeting of April 25, when Mr. Herbert W. Gleason presented that superb array of lantern views of the flowers of the Canadian Alps and their habitat, will welcome the picture that forms the frontispiece of the eleventh volume of APPALACHIA. It was one of the most strikingly beautiful, in its well-managed color-scheme, of the numerous scenic views so realistically reproduced upon the screen. Presented here as a mere page in monotint, the photogravure preserves as well as could be expected the charm, if not the impressiveness, of that many-tinted enlargement.

The scene portrayed is undoubtedly one of the three or four most notable in the Canadian Alps, closely rivalling the more familiar one at Lake Louise. Unlike the latter, however, the entire picture does not compose in one almost overwhelming unit. From almost any point one half the grandeur or the beauty must be omitted in any single view, as here from the outlet of the lake. Doubtless Mr. Gleason made a wise selection in giving us the great central features, — the exquisite

lake itself, the ponderous mass of snowy Lefroy in the background to the left, and the aspiring shaft of Hungabee on the right with Glacier Dome midway between, and the rocky mass of Yukness thrust forward in the centre to form one side of the hanging valley through which one ascends to Abbot Pass. On the right he had to sacrifice the terraced and minareted mass of Victoria, Huber, and Wiwaxy peaks, and on the left the vertical upward leap of Mt. Biddle.

Though the delicate coloring of the green water is imperfectly rendered, one gets a hint of one of the chief charms of O'Hara — its beautiful mossy shores, bordered often with stones as flat as flaggings. This margin at times extends back for several yards just above the level of the lake. In one place, and it is seen in our picture, a line of those rocks reach like stepping-stones far out into the here shallow waters. The wonderful cascades, which gush in braided beauty from under the vast morainal pile that encloses the last of a series of lakelets in the hanging valley mentioned above, are clearly discerned. The entire width of the falls is several hundred feet.

Lake O'Hara, however, is no stranger, by name at least, to the readers of APPALACHIA. Besides frequent casual mention in papers read before the Club, it was spoken of quite at length by our Vice-President, Mr. Curtis, in his interesting paper, "The Making of Abbot Pass," in Volume IX., No. I. It has also been truly reported, and surely it should be a matter of record, that the first of civilized women to look upon its beauty were two members of the Appalachian Mountain Club — Miss Eva Channing and Miss Agnes W. Lincoln — in 1902.

Then the lake was somewhat difficult of access, but recently this region has been included within the Yoho Park as a government reservation, and a fine trail now makes it easy of access. The ideal approach, however, will always be over Abbot Pass from Lake Louise, as described by Mr. Curtis, returning by the new trail to Hector Station.

Report of the Recording Secretary for 1904.

On January 1, 1905, the total membership of the Club was 1563, an increase of 84 over the number reported one year ago.

The Honorary Members numbered 18, Prof. Alfred R. C. Selwyn having deceased and Lieut. Robert E. Peary having been added, and the Corresponding Members 50, Prof. J. P. Lesley having deceased and Arthur O. Wheeler and Joseph Le Conte having been added. There were 227 Life Members and 1268 Annual Members, making 1495 members of the Corporation. During the year 12 members deceased, 87 resigned, and 40 were dropped for non-payment of dues. The new members numbered 154.

There were held during the year 9 regular, 11 special, and one field meeting, besides one meeting, with dinner, in New York City. The average attendance was 230.

There were presented at these meetings, besides reports and several short addresses at Mt. Washington, New York, and at the Excursion Meeting in December, 18 papers, 17 of which were illustrated with the lantern. Four evenings were devoted to Asia, — the Himalayas and Turkestan; three to Europe, — Scotland, Switzerland, and Greece; one to Africa, — Abyssinia; two to Canada, — the Canadian Alps and the McKenzie Basin; three to Massachusetts, one each to Maine, New Hampshire, and Arizona. Two evenings were devoted to general subjects, — "Shade Trees and their Enemies" and "The Foot and Footwear."

The Field Meeting was held at the Summit House, Mt. Washington, N. H., July 2-9. Accounts of this meeting and of the excursions of the year will be found in the report of the Excursion Committee.

The Snow-shoe Section reëlected its officers, Mr. W. R. Davis, Chairman, and Mrs. Albion D. Wilde, Secretary and Treasurer. The membership is now 181. Another successful trip was made to Jackson in February.

The annual social meeting was held at Hotel Vendome on Friday evening, February 12, with an attendance of 290. A balance of \$43.26 was paid into the treasury.

In addition to reunions and "At Homes" held in the Club Rooms, there have been several interesting exhibitions, those of equipment for camping and snow-shoeing being particularly noteworthy. Reports of these will be found in appropriate places.

The lease of the Club Rooms in the Tremont Building has been renewed again for a term of one year, ending October 31, 1905.

Two numbers of APPALACHIA were published, — Volume X., No. 3, in April, and Volume X, No. 4, in December. There was also published a valuable little pamphlet entitled "Suggestions as to Outfit for Tramping and Camping."

Reference is made to the reports of the Trustees of Real Estate, the Councillors, and various committees for work accomplished in the different departments.

During the past year the Club has exercised its influence in several matters before the national and the State legislatures: before Congress, the protection of Niagara, the preservation of the Calaveras grove of Big Trees in California, the measure to establish a National White Mountain Forest Reserve; in Massachusetts, acts to establish the office of State Forester, to provide for the better protection of forest lands, to prevent depredation in field and woodland, and in reference to location of street railways in Middlesex Fells.

Respectfully submitted,

ROSEWELL B. LAWRENCE,

Recording Secretary.

Report of the Corresponding Secretary and Librarian for 1904.

IN submitting my first report as Corresponding Secretary and Librarian I am conscious of the inadequate manner in which the work of the position has been carried on. Any one who succeeded to an office so long and so ably filled by Mr. Ritchie must of necessity suffer from comparison, and in this particular instance the duties involve so many technical details that for a novice to master these is of itself a work of no small time. To him, whose advice and assistance have been so freely placed at my disposal, I wish to express my thanks.

During the year the Excursionist Club of Iesi, Italy, has been added to our exchange list, and the Piolet Club of Geneva has temporarily discontinued the publication of its organ, "Le Piolet." Otherwise the exchanges remain as a year ago.

My principal work as librarian has been to rearrange and classify the books in our possession. Extra sections of Globe-Wernicke bookcase have been purchased to give the needed additional accommodations, and such duplicates and other books as it did not seem desirable to keep have been laid aside for sale or other disposition. This work when completed will leave room for two years' normal growth, and will, I hope, add much to the value and usefulness of the library. At best, however, any plan which can be carried out must be regarded as little better than a makeshift. Our library has outgrown its present quarters, and when the limit of growth for which it has been possible to provide has been reached, — and the time is not far off, — the old problem will become more crucial than ever, for no more sections of bookcase can be put in without seriously impairing the utility of the Club rooms. To our Treasurer, Mr. Bullock, who has given so much of his time to aiding me in this library work, both the Librarian and the Club are under obligations.

Owing to this rearrangement, no attempt has been made to enlarge our collection beyond the purchase of a few standard books on camping and woodcraft, as a result of the exhibit held last spring by the Department of Exploration and Forestry. The number of such books in our library might well be increased in the future. A list of the year's accessions is appended.

Respectfully submitted,

FREDERIC GILBERT BAUER,
Corresponding Secretary and Librarian.

Accessions to Library in 1904 other than by Exchange.

DONATIONS.

[Names of Members in Italics.]

Adventures in the Wilderness. Wm. H. Murray. Gift of *E. E. Norton*.
Address by W. M. Davis : Geography in the U. S. Gift of *J. Ritchie, Jr.*
Ainos or Hairy Men of Yesso, Saghalien and the Kurile Islands. Gift of
C. W. Folsom.

Annual Report of the War Dept. for the Fiscal Year ended June 30, 1901.

Gift of *A. Chamberlain*.

Army Ration Issue and Conversion Tables. Gift of *A. Chamberlain*.

By-Laws of Rocky Mountain Club. Gift of publishers.

Climbs and Explorations in the Canadian Rockies. *H. E. M. Stutfield & J. Norman Collie*. Gift of publishers.

Comprehensive Atlas. *T. G. Bradford*. Gift of *C. W. Folsom*.

Editorial Comment. (The Evolution of Climate.) *N. E. W.* Gift of *C. W. Folsom*.

Eighth International Geographical Congress, Washington. Gift of publishers.

Evidence of Agency of Water and Distribution of Loess in Missouri Valley and The Loess at St. Joseph. *G. F. Wright & Luella A. Owen*. Gift of authors.

Flora of Willoughby, Vermont. *George F. Kennedy*. Gift of author.

Forestry. *F. Wm. Rane*. Gift of author.

Gems of Rocky Mountain Scenery. *Alfred E. Mathews*. Gift of *J. Ritchie, Jr.*

Geologische Nachlese No. 9. *Albert Heim*. Gift of author.

Geomorphogeny of the Upper Kern Basin. *Andrew C. Lawson*. Gift of author.

Guide to Newport, Providence & Western R. R. Gift of *C. W. Folsom*.

Guide to Chamois and Mont Blanc.

Guide to Zermatt and the Matterhorn. } *Edward Whymper*. Gift of author.

Hermit's Wild Friends. *Mason A. Walton*. Gift of *E. E. Norton*.

Historical Description of Westminster Abbey. *S. E. Morse*. Gift of *C. W. Folsom*.

Hunter's Handbook. "An Old Hunter" (Pseudonym). Purchased.

Illustrated Pilgrim Memorial. *S. E. Morse*. Gift of *C. W. Folsom*.

In Pastures Green. *Harriet T. Hoyt*. Gift of author.

Knocking Round the Rockies. *Ernest Ingersoll*. Gift of *J. Ritchie, Jr.*

La Cartographie de Mammoth Cave. *M. Ellsworth Call*. Gift of *J. Ritchie, Jr.*

Les Cavernes pénétrables à l'homme dans la craie du Bassin Anglo-Parisien. *Max le Couppey de la Forest*. Gift of author.

Les Explorateurs Genevois des Alpes. *Henri de Saussure*. Gift of author.

Log Cabins and Cottages. *Wm. S. Wicks*. Gift of author and publisher.

Madeira and the Canary Islands. *A. Samler Brown*. Gift of *J. Ritchie, Jr.*

Mitchell's Atlas of Outline Maps. *S. E. Morse*. Gift of *C. W. Folsom*.

Model of the Metropolitan District of Boston. *S. E. Morse*. Gift of *J. Ritchie, Jr.*

Railroad Guides. Gift of *C. W. Folsom*.

Rambler's Note Book at the English Lakes. *H. D. Rawnsley*. Gift of *E. E. Norton*.

Relief des Santis in 1/5000. *Albert Heim*. Gift of author.

Report of Forest Commissioners of Maine. Gift of *Macy S. Pope*.

Research in State Universities. *I. C. Russell*. Gift of author.

Sitzung der Mathematisch-naturwissenschaftlichen Klasse vom 21 April, 1904. *Julius Hann*. Gift of author and publisher.

Sport and Travel in the Northland of Canada. David T. Hanburg. Gift of *J. Ritchie, Jr.*

Stauungsmetamorphose an Walliser Anthracit und einige Folgerungen daraus. *Albert Heim*. Gift of author and publisher.

System of Geography for use in Schools. S. E. Morse. Gift of *C. W. Folsom*.

Texas Almanac and Guide. Wm. S. Wicks. Gift of publishers.

Therapeutics of Mineral Springs and Climates. I. Burney Yeo. Gift of *J. Ritchie, Jr.*

Über eine doppelte tägliche Periode des Windkomponenten auf den Berggipfeln. *Julius Hann*. Gift of author.

Über die tägliche Drehung der mittleren Windrichtung auf Berggipfeln. *Julius Hann*. Gift of author.

Unknown Switzerland. Victor Tissot. Gift of *J. Ritchie, Jr.*

Visit to the Holy Land. Mme. Ida Pfeiffer. Gift of *J. Ritchie, Jr.*

Guide Books :

Paris. Karl Baedeker. Gift of Chas. Scribner's Sons.

Southern France, including Corsica. Karl Baedeker. Gift of Chas. Scribner's Sons.

Northern France. Karl Baedeker. Gift of Chas. Scribner's Sons.

Switzerland. Karl Baedeker. Gift of Chas. Scribner's Sons.

Eastern Alps. Karl Baedeker. Gift of Chas. Scribner's Sons.

Great Britain. Karl Baedeker. Gift of Chas. Scribner's Sons.

London. Karl Baedeker. Gift of Chas. Scribner's Sons.

Dominion of Canada. Karl Baedeker. Gift of Chas. Scribner's Sons.

The Rhine. Karl Baedeker. Gift of Chas. Scribner's Sons.

Austria. Karl Baedeker. Gift of Chas. Scribner's Sons.

Southern Germany. Karl Baedeker. Gift of Chas. Scribner's Sons.

Northern Germany. Karl Baedeker. Gift of Chas. Scribner's Sons.

Treasurer's Report for 1904.

THE receipts and payments for the year were as follows : —

RECEIPTS.

Cash on hand Jan. 1, 1904 :

" " Mount Washington Refuge Fund.	\$92.06	
" " Prepayment of dues and subscriptions	46.00	
" " Cash unappropriated	308.94	
		\$447.00

Permanent Fund :

Life memberships, 5 at \$30.00	\$150.00	
" " 8 " 50.00	400.00	
		\$550.00
Interest on Permanent Fund for 1904	\$324.46	

TREASURER'S REPORT.

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Annual dues:

For 1903, 2 at \$3.00 (revived)	\$6.00	
" 1904, 1040 at \$4.00	4160.00	
" 1905, 3 " "	12.00	
	<u> </u>	4178.00

Admissions:

New members, 43 at \$5.00	\$215.00	
" " 103 " \$8.00	824.00	
	<u> </u>	1039.00

Real estate:

Donation		25.00
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Rooms:

Keys	\$26.00	
Donations	5.00	
	<u> </u>	31.00

APPALACHIA and other publications:

Sales of Walks and Rides about Boston	\$87.62	
" " APPALACHIA and other publications	122.98	
Advertising in APPALACHIA	405.20	
	<u> </u>	615.80

Reserve Fund:

Interest on fund for 1904		82.50
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Annual Reception:

Balance for 1903	\$45.51	
" " 1904	43.26	
	<u> </u>	88.77

Department of Improvements:

Donations for Bolles Trail	\$6.00	
" " Carter Notch Camp	80.50	
	<u> </u>	86.50

Interest:

Bank account for 1904	46.03	
Total unappropriated receipts for 1904	<u> </u>	6517.06
		<u> </u>
		\$7514.06

PAYMENTS.

Trustees of the Permanent Fund:

Life memberships, 5 at \$30.00, 8 at \$50.00	\$550
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Real estate:

Repairing house in Rhododendron Reservation	\$238.31	
Trustees' personal and court expenses	74.90	
	<u> </u>	\$313.21

Rooms:

Rent and care of Club Rooms for 1904	\$1500.00	
Lighting	36.56	
Storage warehouse	21.95	
Bookcases	48.50	
Fittings, supplies and sundries	66.60	
	<u> </u>	1673.61

APPALACHIA and other publications :

Vol. X., No. 3 and part of No. 4 . . .	\$1167.51	
Delivery of No. 3 and part of No. 4 . .	340.14	
Reprints	30.47	
Business agent	50.00	
Walks and Rides about Boston :		
Binding 100 copies,	\$17.00	
E. M. Bacon, royalty,	10.02	27.02
		<u>1615.14</u>

Library :

Books and catalogue cards	\$12.35	
Binding	76.44	
		<u>88.79</u>

Stationery, Printing and Postage :

Register for 1904, 2500 copies	\$344.68	
Typewriter equipment	138.43	
General expenses	549.26	
		<u>1032.37</u>

Clerical services 373.00

Expense of meetings 346.98

Department of Topography :

500 Maps of Three Mile Island 20.00

Department of Exploration and Forestry :

Forestry at Rhododendron Reservation . . \$50.00

General expenses 7.11

57.11

Department of Improvements :

Building Carter Notch Camp \$345.06

Paths and expenses 234.46

579.52

Donations :

International Geographic Congress 250.00

Total expenses 6349.73

Cash on hand December 31, 1904 :

Mt. Washington Refuge Fund \$92.06

Prepayment of donations and dues 26.00

Cash unappropriated 496.27

614.33

\$7514.06

Respectfully submitted,

RUFUS A. BULLOCK,

Treasurer.

Report of Trustees of the Permanent and Reserve Funds for the Year 1904.

PERMANENT FUND. — PRINCIPAL.

1904.

Jan. 1.	Amount on hand from last report	\$9368.95	
	Amounts received from R. A. Bullock, Treas., for Life Memberships : —		
	16 Miss Jessie H. McKee	\$30.00	
Feb. 9	C. Herbert Newhall	30.00	
	11 Miss Frances Ropes	30.00	
	16 George A. Sargent	30.00	
	" Mrs. George A. Sargent	30.00	
Mar. 24	Rufus A. Bullock	50.00	
	" Thomas J. Emery	50.00	
Apr. 13	Charles L. Carpenter	50.00	
	28 John Fogg Twombly	50.00	
July 20	George B. Elliot	50.00	
Dec. 13	Miss Helen M. Jones	50.00	
	" Miss Laura A. Jones	50.00	
	14 T. Franklin Carrier	50.00	550.00
	Total Principal on hand Jan. 1, 1905	\$9918.95	

PERMANENT FUND. — INTEREST.

1905.

Jan. 1.	Suffolk Savings Bank : 12 months, to Oct., 1904	\$40.95	
"	Provident Institution for Savings : 12 months, to July, 1904	54.95	
"	Lexington Savings Bank : 12 months, to Oct., 1904	40.43	
"	Eliot Five Cents Savings Bank : 12 months, to Oct., 1904	30.06	
"	Franklin Savings Bank : 12 months, to Aug., 1904	34.18	
"	Boston Five Cents Savings Bank : 12 months, to Oct., 1904	35.14	
"	Institution for Savings, Roxbury : 12 months, to Oct., 1904	35.30	
"	Canton Institution for Savings : 12 months, to Oct., 1904	40.29	
"	Warren Institution for Savings : 9 months, to Oct., 1904	6.60	
"	North End Savings Bank : 6 months, to July, 1904	6.56	
			<u>\$324.46</u>

60 TRUSTEES OF PERMANENT AND RESERVE FUNDS.

1904.

Nov. 1. Paid R. A. Bullock, Treas., as per vote of
Council, accrued interest during year . . . \$324.46

PERMANENT FUND.

1904.

Dec. 31. Total Principal on hand \$9918.95

Deposited as follows :—

Suffolk Savings Bank, Book No. 100,753 . .	\$1201.30	
Medford Savings Bank, Book No. 14,915 . .	500.00	
Lexington Savings Bank, Book No. 1921 . .	1185.61	
Eliot Five Cents Savings Bank, Book No.		
32,233	1080.67	
Franklin Savings Bank, Book No. 70,143 . .	1002.97	
Boston Five Cents Savings Bank, Book No.		
425,754	1031.12	
Institution for Savings, Roxbury, Book No.		
80,803	1000.00	
Canton Institution for Savings, Book No.		
9015	1182.12	
Warren Institution for Savings, Book No.		
76,456	728.60	
North End Savings Bank, Book No. 26,345	1006.56	
	<u> </u>	\$9918.95

Book No. 118,265, Provident Institution for
Savings, having reached the limit allowed
to bear interest, was closed and reinvested
as follows :—

Amount of Principal, Jan. 1, 1904	\$1556.90
Accrued interest July, 1904	54.95
	<u> </u>
Total	\$1611.85

Medford Savings Bank, Book No. 14,915 . .	\$500.00
North End Savings Bank, Book No. 26,345 . .	500.00
Warren Institution for Savings, Book No.	
76,456	322.00
(Cash balance) Eliot Five Cents Savings	
Bank, Book No. 32,233 . . . . .	.69
R. A. Bullock, Treas., on account of interest	289.16
	<u> </u>
	\$1611.85

RESERVE FUND. — PRINCIPAL.

1904.

Jan. 1. Amount on hand from last report \$2468.80

TRUSTEES OF PERMANENT AND RESERVE FUNDS. 61

RESERVE FUND. — INTEREST.

Dec. 31. Boston Five Cents Savings Bank: 12 months to Oct., 1904	\$51.80	
Canton Institution for Savings : 12 months, to Oct., 1904	7.91	
Eliot Five Cents Savings Bank: 12 months, to Oct., 1904	22.79	
Interest accrued during year	<u>\$82.50</u>	
Nov. 1. Paid R. A. Bullock, Treas., as per vote of Council, accrued interest during year . .	<u>\$82.50</u>	
Total Reserve Fund on hand Jan. 1, 1905		\$2468.80
Deposited as follows : —		
Boston Five Cents Savings Bank, Book No. 229,173	\$1519.72	
Canton Institution for Savings, Book No. 10,793	232.55	
Eliot Five Cents Savings Bank, Book No. 46,187	716.53	
		<u>\$2468.80</u>

1905.

Jan. 1. Total Permanent Fund	\$9918.95	
“ Reserve Fund	2468.80	
“ in hands of Trustees	—————	\$12,387.75

ISAAC Y. CHUBBUCK, } Trustees of the
REST F. CURTIS, } Permanent and
CHARLES H. FRENCH, } Reserve Funds.

The Committee appointed to examine the accounts of the Appalachian Mountain Club respectfully report that they have examined the account of the Treasurer for the year 1904, and believe the same to be correct. Proper vouchers were shown for all payments, cash on hand verified, the same amounting to \$614.33.

We have also examined the accounts of the Trustees of the Permanent and Reserve Funds, and find them to be correct. The Permanent Fund shows a balance of \$9918.95, and the Reserve Fund amounts to \$2468.80.

Investments as reported by the Trustees have been verified.

ALBERT E. DUFFILL, } Auditing
FREDERIC W. STONE, } Committee.
RUSSELL A. BALLOU, }

Boston, January 5, 1905.

Report of the Trustees of Real Estate for 1904.

THERE is nothing new to report relative to the Lead Mine Bridge, the Snyder Brook, the Farrar, and the Parsons Reservations, other than that the trees, shrubs, buildings, paths, and signs have received the usual attention.

The annual spring cleaning and reboughing of the bunks in the Madison Spring Hut were attended to by the Councillor of Improvements. The time has come when it is necessary to take into consideration what changes shall be made in the occupation of the Hut, and whether it may not be advisable to enlarge it, put a man in charge, and ask compensation for its use. Something certainly is necessary for the protection of the property of the Club and to prevent trouble which otherwise may happen at any time.

One of the all-day walks of the Club during the year, under the charge of the Excursion Committee, has been to the Carle's Pines; and as has happened heretofore, all were pleased with the appearance of the trees. The work upon this Reservation, suggested in the report of the Trustees of last year, has not as yet been done.

The litigation, which was in progress relative to the right of the widow of Mr. Ithiel E. Clay to make the conveyance of the property which had belonged to him, including the conveyance to the Club of the Clay Reservations, has been decided favorably, and there no longer is any question of her right to make her deed to the Club.

Lumbering operations in the vicinity of the Snyder Brook Reservation continue, and though considerable care is used to prevent unnecessary injury to the paths in the vicinity, nevertheless the attractiveness of the region has suffered seriously. The committee of the Senate of the United States to which were referred the petitions, including that from our Club, for a national reservation in the White Mountains, has reported favorably.

The exterior of the main portion of the house upon the Rhododendron Reservation in Fitzwilliam has been attended to at a cost of \$238.31, so that it now is weather-tight and attractive in appearance. It is insured in the sum of \$500. So soon

as possible, it is essential that some work be done upon the ell, upon the interior of the house, and also upon one of the barns. Mr. Edward F. Stevens at our request made an examination of the premises and recommends in his report to us the doing of this work at an estimated cost of about \$200. The Trustees have under consideration the possibility of the occupation of the house by parties from the Club itself during the coming summer. It is in a most attractive situation, supplies can be furnished readily, and no pleasanter place for an outing of a week or two can readily be found.

The camp on Three Mile Island was open from January 29 to February 1, from May 21 to May 31, and from July 9 to September 9, and during the summer season was attended by 94 men and 84 women, 23 persons more than in the summer season of 1903. Omitting those who belong to the families of members, 22 only were guests. Adding those who visited the camp at other times during the year, the whole number is 220.

During the winter work continued upon the addition to the camp, and it was finished in May. The expenditures for all improvements since November 1, 1903, amount to about \$2100, of which sum 47 members contributed \$449.46. The net profit realized in running the camp during the summer, about \$500, was used also to pay for improvements. The remaining indebtedness now is \$1099.84, against which there is a small working balance in the treasury, which is retained to meet winter and spring expenses.

Mr. H. C. Francis has built a wing to the new wharf and a new top on the old portion ; and although these improvements were to provide a dock for his launch, they nevertheless have become the property of the Club, and are of benefit to it. Mr. Rosewell B. Lawrence, at a cost of \$325, put up a small building, named the Monastery, for office purposes, upon the southeastern part of the island, and, being a part of the island, it now is the property of the Club.

A barge, twenty-two feet by eight feet, was built at a cost of \$100, and was found useful in the transfer of freight, baggage, canoes, and passengers. Eight tent floors were built, three for the Club and five for members, and six tents were bought for the Club. Floors number now 34, and Club tents 22.

The insurance policy of \$1000 expired October 17, and was replaced by one of \$2000. The whole insurance now is \$4700.

Mr. Lawrence, for the committee in charge of the camp, reports the year as most successful; that more people have enjoyed the camp than in any preceding season; that several have learned to dive, swim, and paddle; and that some have added to their weight, and many have gained in health and happiness.

The Trustees feel warranted in expressing in their report the great indebtedness of the Club to Mr. Lawrence, for his generous contributions in money and time, and for the tact and skill he has shown in the management of the camp. He has made to the Trustees a full report containing the items of receipts and payments; and this, having been examined by the auditors of the Club, has been filed with the papers in our charge.

The pamphlet descriptive of the reservations, spoken of in the report of last year, has been issued, and has attracted much attention.

In closing we again urge upon the attention of all who are interested in our work that there is urgent need of money to enable us to care for and improve the reservations.

Respectfully submitted for the Trustees,

HARVEY N. SHEPARD,

Chairman.

Reports of the Councillors for the Autumn of 1904.

Topography.

BY FREDERIC V. FULLER.

THE Club is indebted to Mr. E. G. Chamberlain for almost all of the topographic work accomplished in 1904, for not only has he made sketch maps of nearly forty of the "outings," printing and distributing some nine hundred copies, but he has gone forward with his valuable and unique series of panoramic guides.

His report of this work and other observations incident thereto are of so much interest that the Councillor quotes below his account in full: —

I have made and blue printed panoramic guides of the views of six lookout points; viz., Prospect Hill Tower in Somerville and Burrill Hill Tower in Lynn Woods in Massachusetts; Three Mile Island

Tower, Bear Island Boulders, and Red Hill, in New Hampshire; and Western Promenade in Portland, Maine. Each point was occupied on several days, but owing to unfortunate conditions some of the charts are incomplete.

There are two regions of special topographic interest to the Club which have been crossed or entered on many of the outings, — the Noannet country in Dover, and Lynn Woods. The available maps of these regions are so vague as to be of little use to members generally, so I have spent some time in trying to construct maps by putting together the “outing” maps, connecting them by my own private expeditions. I hope to present results before snow comes.

Between 1872 and 1886 I devoted a great deal of time to a panorama from Great Blue Hill. I spared neither labor nor expense to get it absolutely correct so far as positions and identifications of objects was concerned. The drawing I admit was not a work of art. It was never published, but I made a reduced copy, of which I have given away, in past years, hundreds of blue prints. In 1886, at the request of Mr. A. Lawrence Rotch, I made a greatly enlarged copy for the Observatory. Later, the Park Commission borrowed this from the Observatory and made a reduced copy, which they printed in their 1895 report. It was a fine drawing, but their draughtsmen made more than a dozen errors in copying. Early this year Mr. H. H. Clayton of the Observatory wrote me that such an accurate chart ought to be made available to the hosts of visitors on the Hill, and he kindly volunteered to bear the expense of printing it. Accordingly I spent several weeks in revising the drawing, that it might be printed uniform with the panoramas in APPALACHIA. Just as it was ready, I received word not to send it, as the street railway company was to reprint the copy from the Park Commissioners’ report. I at once notified them of the errors therein, and offered them my revised chart. But they had gone too far to change their plans. They have issued a very convenient and beautiful chart in three colors. But they have faithfully reproduced the dozen old errors and added a dozen fresh errors of their own.

During the fall I have spent much time in studying anew the maps of New Hampshire, while trying to identify the hills seen from Red Hill and Bear Island. I had frequently to correct the maps from my own old work, and in many cases I cannot reconcile the maps at all with my observations.

From various allusions in APPALACHIA I judge there must be some valuable information scattered among our members; and I would urge,

now that the White Mountains have been pretty well mapped, that the Club take up the work in Central and Southern New Hampshire. There are several very interesting sections of topography between Mt. Whiteface and the Massachusetts line of which almost nothing is known, though their principal summits are visible from our Massachusetts hills, generally passing for Mt. Washington.

Early in 1904 five hundred copies of the map of Three Mile Island were issued and handed to the committee in charge of the island for distribution among those interested. The Councillor, as stated in his last report, had in mind preparing and issuing some sketch maps showing graphically how short outings of definite length could be made through interesting sections of the Fells and Blue Hills reservations. In the spring of this year, however, the Walker Company brought out a bird's-eye view of Middlesex Fells, and, later in the season, an excellent map of the Blue Hills Reservation was published, so that the immediate necessity for further maps of these park lands was much diminished and the project of issuing them postponed.

Reports of the Councillors for the Autumn of 1904.

Art.

BY MARTHA A. VINAL.

SINCE the last report was written the only gifts received by this department are two of Gustave Doré's engravings, the "Arrival at the Summit" (of the Matterhorn, July 14, 1865), and "The Fall," presented by the retiring President, Mr. John Ritchie, Jr.

An "At Home" of the Room Committee held in the Club rooms on the 18th of January brought before the Club the work of a fellow member, Mr. Walter L. Chaloner, who exhibited a fine collection of water-color views of mountains in New Hampshire, Massachusetts, Canada, California, and Mexico. The pictures were shown through the week and were thoroughly enjoyed by all who saw them.

At the annual reception held at the Hotel Vendome on the 12th of February, a large number of pictures hung in the small reception room were visited by many of the guests during

the evening. Contributions to the exhibition were received from Mr. H. H. Robinson, who sent some of his monotypes, Mr. Frank E. Somers, and Mr. Bunkio Matsuki, who showed a view of Fusijama, the sacred mountain of Japan. Among the pictures furnished by members of the Club were paintings by Miss Agnes Leavitt and Mr. Chaloner, photographs by Mr. Frederic Endicott, and by Mr. Alexis H. French, some of which were daintily colored by Mrs. Rufus P. Williams, Mr. Charles E. Lord, Professor Herschel C. Parker, and Mr. Edward Little Rogers. Mr. Endicott and Mr. George D. Newcomb also kindly loaned photograph albums of various trips.

Mr. H. H. Robinson's interesting monotypes of American and European scenery were again placed at our disposal for the "at home" of President and Mrs. Ritchie on the 16th of May. The pictures were on exhibition for a week. The members of the Club greatly appreciate Mr. Robinson's willingness to lend us these valuable works of art.

On the occasion of the second "at home" of the Room Committee, held December 5, we again had the pleasure of seeing a large collection of Mr. Chaloner's pictures, — views of Lake Winnepesaukee, as well as of many California wild flowers, the latter being shown in complete form and in their separate parts. These were hung for an entire week and proved very interesting to many visitors. We also had in the rooms at this time three albums of photographic views taken in the Yosemite Valley during the excursion of the Sierra Club this last summer, which were kindly loaned by Mr. John Wells Morss.

The only pilgrimage of the Loan Collection of Sella Photographs this year was made the last of September, when the pictures were sent to the West Point Military Academy, where they were on exhibition in the library for about three weeks.

Reports of the Councillors for the Autumn of 1904.

Exploration and Forestry.

BY HARLAN P. KELSEY.

It is customary to summarize in this report the various climbs out of the beaten track done by Club members. The last season

was apparently one of little accomplishment, at least as compared with the extraordinary record of the preceding year.

Although Miss Peck in South America did not secure her summit (Mt. Sorata), her persistent enterprise is worthy of notice.

In the Canadian Rockies Professor Fay and Dr. A. Eggers were the only Club members reported as on the ground. Dr. Eggers undertook the ascent of the northern peak of Mt. Goodsir, but was turned back by the weather. With Mr. J. H. Cameron and the guide, Christian Häslar, Professor Fay succeeded in making the summit of Mt. Temple by a new way, — the one first attempted in 1908. He has kindly furnished a few details which appear as an appendix to this report. With Rabbi Charles Fleischer and the guides Häslar and Michel, he also made, on August 5, the ascent of the peak now bearing his name — until recently known as "Mt. Heejee." Its first ascent had been accomplished by Miss Gertrude E. Benham of England, a few days previously.¹

Professor Herschel C. Parker's extraordinary day's work on the Presidential range with Mr. Symonds deserves mention.

It is earnestly desired that members making unusual mountain ascents furnish this Department with data, so that a complete record of the year's events may be duly chronicled.

The scientific instruments and field equipment in the custody of the Councillor are in good repair, and when not needed in the work of the Department are available for the use of members where scientific exploration or unusual mountain climbing is contemplated. Application should be made to the Councillor by mail or otherwise, giving particulars, and a receipt is required in all cases, guaranteeing the prompt return of any instrument or article so borrowed. It is here proper to acknowledge the valuable additions to the mountain equipment of one Alpine ice-axe and one thousand feet of Alpine rope, the latter in sections of the usual length, the gift of Mr. Edward Whymper, London, England, an Honorary Member of the Club.

A list of the property in the care of the Councillor and available to members under above conditions is as follows: —

¹ See *Alpine Journal* for September, 1904, p. 333.

13 Mountain Ropes.

- 2 Ice-Axes and one case.**
- 1 Pocket Thermometer in nickel case.**
- 1 Zeiss Field-Glass and case.**
- 1 Watkin Aneroid Barometer and case.**
- 1 Hottinger “ “**
- 1 Prismatic Compass in box.**
- 1 Surveyor’s “ in bag.**
- 1 Bracelet Compass.**
- 1 Sextant and case.**
- 1 Pocket Level and case.**
- 1 Clinometer and case.**
- 1 Red Signal Cloth.**

Two exhibitions have been held under the direction of the Department during the year. The first one, devoted to the display of camping and mountaineering outfits, opened Friday, May 27, and remained on view through Saturday, June 6. This exhibit was in direct charge of a committee consisting of Messrs. Allen Chamberlain (Chairman), Ralph C. Larrabee, and William P. Hubon, and the complete success of the affair was due to the earnest efforts and labors of this committee. The Club members responded to the invitation for material very freely, and a great many of the leading houses dealing in sporting goods and scientific instruments in Boston and New York loaned special articles. During the exhibition the rooms were open from 3 to 5.30 o'clock P. M., and on two evenings from 7.30 to 9.30. The exhibition was somewhat limited by the restricted space of the Club Rooms, and was made up principally of such articles as one could pack into the woods on his back as personal outfit. Among interesting articles shown were tents, heavy sleeping-bags, and comprehensive cooking-kits, a small but interesting exhibit of Alpine kits, including ice-axes, mountain ropes, snow-goggles, Swiss nailed boots, face-masks, etc. Various kinds of packing outfits, from a canvas bag with leather slings to the knapsack in several models, pack-baskets, and European rucksacks in many styles, were exhibited; also boots, moccasins, and shoes for mountain and camp use, and camp axes. Light shoulder bags suitable for ladies' use, and a

variety of canteens, mosquito head-nets, belt-hooks, and other articles of the sort, were some of the smaller wares shown. Among the larger articles was a three-man A tent of silk, as described by Stewart Edward White in "The Forest," a model of a canoe tent, sleeping-bags, blankets, and ponchos, etc. One table was devoted to condensed and evaporated foods and food-bags, and was the centre of especial interest.

A small but fine selection of camp photographs, including some of the Club shelters in the White Mountains, were on exhibition.

In connection with the exhibition the Council authorized the Publication Committee to print a pocket pamphlet containing in detail two White Mountain outfits for men (lists of the actual articles carried by two Club members after some years of experimenting), also a table of condensed foods such as may be found in the market, and an excellent bibliography of the subject prepared by a Club member, Mr. Gardner M. Jones, Librarian of the Salem Public Library. This pamphlet, at ten cents a copy, may be had by applying to the Business Agent of the Club.

On one of the evenings a demonstration of packing was given, and an Alaskan prospector's pack sent by Mr. Arthur Walden of Wonalancet, N. H., was opened, to the delight of those present. One of the packs described in the pamphlet above alluded to was also opened and re-stowing demonstrated. The exhibition was undoubtedly well received and was of great value to many members who anticipate camping or mountain climbing during the summer.

The second exhibition was held in the Club Rooms from December 14 to December 20, and was open each day from 10 o'clock A. M. to 5.30 P. M. and Wednesday and Friday evenings. It was under the direction of a special committee composed of Messrs. Harland A. Perkins (Chairman), W. R. Davis, Edward F. Stevens, Edwin L. Homer, and Mrs. Lewis B. Tarlton. The entry book of the Committee shows that 217 separate exhibits were entered, which included all shapes and styles of snow-shoes, skis, wearing apparel, creepers, ice-axes, and several hundred winter photographs. The various sporting-goods houses again responded very freely to the invitation to exhibit, and the

members of the Club having equipment were also liberal and prompt in sending in their paraphernalia. On Wednesday evening the subject of snow-shoeing in all its phases was thoroughly discussed at a session for the purpose. This exhibition was also visited by a large number of people, and should prove a valuable means of education in the art and equipment of snow-shoeing. To the committees in charge and to members and tradesmen sending in exhibits, the Councillor desires to express his earnest thanks, for to them the success of the two exhibitions is due. It is hoped that the same may be repeated and possibly enlarged upon another season.

It has been the endeavor to keep the Club in touch with all the leading forestry movements in New England and to some extent elsewhere in the United States. Fourteen hundred copies of a special circular urging indorsement by local clubs, civic bodies, and citizens, of the bills for establishing the White Mountain Reservation and the Southern Appalachian Mountain Park, were sent out by the Councillor through the office of the American Civic Association to all of its members. The results have been very gratifying, many educational bodies, improvement associations, and individuals throughout the country, including the Massachusetts Institute of Technology and Harvard University, having petitioned Congress through congressmen in favor of the passage of said bills. Unfortunately, it seems improbable that favorable action will be taken by the present Congress, and so there is greater need persistently to bring pressure to bear on every senator and representative from New England and elsewhere, so that better results may be secured at the next session. The Club's interest in the preservation of the forests of the White Mountain region and of the entire Appalachian System is such that each member should feel it a duty personally to write the members of Congress from his or her district urging active coöperation in the passage of the bills now or to be before Congress.

In the interest of the Club, the Councillor has appeared at several hearings before the joint Committee on Agriculture at the State House on bills relating to forestry. A special Committee on Gypsy and Brown Tail Moths, of three members, — Messrs. John Ritchie, Jr., Allen Chamberlain, and your Councillor, —

were appointed by authority of the Council to represent the Club at State House hearings on this very important question; they have attended numerous hearings, and it is encouraging to note that the State Legislature and municipal authorities in affected districts are taking active measures to suppress these pests.

A majority of the Club's reservations have been visited by the Councillor during the year and the forestry condition considered, though partly as an ex-officio member of the Board of Trustees of Real Estate, to whose report further reference in this connection is respectfully made. Persistent effort has been made to secure for the Club as perpetual reservations certain tracts in the White Mountains, containing features of exceptional natural beauty, including primeval forests. While unsuccessful so far in accomplishing a transfer to the Club of these tracts, the present protection of the natural features is assured and a more permanent arrangement is hoped for in the near future, when a more specific report will be made.

ASCENT OF MT. TEMPLE (CANADIAN ROCKIES) BY A NEW ROUTE. BY CHARLES E. FAY.

(On July 21, 1904, accompanied by Mr. J. H. Cameron of Chicago and the guide Christian Häslar, I left camp at Moraine Lake at 6.30 A. M. to make the ascent of Mt. Temple. It being Häslar's first visit to this valley, his lack of familiarity with the topography and with the story of former ascents resulted in his following what seemed to him an inviting lead, directly up from the lakeside to the southeastern arête — the route undertaken in 1893 by Mr. H. K. S. Allen and his party, as narrated by Mr. Allen in APPALACHIA, Volume VII., pp. 281-287. The usual way bears around this spur of the mountain into the valley between it and Pinnacle Mt., from which the ascent is made quite easily. Mr. Allen's party were stopped by "an impassable cliff,"¹ which they had seen from below but had hoped to turn by its southern flank. "Bearing to the left," says Mr. Allen, "with this object in view, we were soon upon a narrow aloping ledge of unstable rock, with the overhanging walls of Temple upon our right and a deep abyss upon our left. There was a steep gully in the cliffs; but the small stream had glazed the rocks with ice and we encountered a storm of snow, all of which led to our return to camp."

Our conditions were far more favorable, having a superb summer day and an excellent guide. We did not observe Mr. Allen's gully, but found it very possible to traverse for perhaps a quarter of a mile upon the narrow

¹ See Illustration, Vol. VII., plate 28.

ledge of sloping scree, with the interesting sheer precipice ever below us. We were not engaged in making records, and it was nearly noon when we paused for a standing lunch at a reëntrant angle, with small stones flying at intervals safely over our heads. Shortly beyond our lunching place we found a couloir by which to pass the escarpment beneath which we had thus far been skirting. Bearing gradually to the left, we had no difficulty in passing, by yet wider breaches, the several less pronounced yet similar escarpments that band the southern side of the great peak. At an altitude of perhaps 10,500 feet we came to the snows which covered the southeastern face of the summit arête, now tolerably soft under the afternoon sun, as our progress had been materially delayed by the indisposition of one of the party. Upon this we made a traverse of several hundred feet, then climbed straight up over very steep snow to the edge of the uncorniced arête. From here to the summit was the easiest travelling imaginable. An hour was passed on the superb peak enjoying the seemingly limitless view, for the day was one of the clearest of the season ; then we descended by the usual way, congratulating ourselves upon the error that had led to our making the ascent by a route far more interesting as well as considerably shorter than that taken by previous parties. Though it was three o'clock when the summit was reached, more than eight hours from camp, it could easily be done in two to three hours less time. The descent was made rapidly — three hours from summit to camp.

Report of the Excursion Committee for 1904.

THE Excursion Committee, after formally organizing with Mr. George W. Taylor, Chairman, Mr. George D. Newcomb, Treasurer, and Mr. Albion D. Wilde, Secretary, held frequent meetings during the excursion season, to conduct the business along the same general lines as in former years. Instead of choosing the usual sub-committee on Outings, these were divided among the several members, each member being responsible for two periods of three outings each, to see that notices were sent to the "Boston Transcript" and to the printer, and also to furnish a leader and financier.

The following details of the several excursions of the seasons have been furnished by the Committees in charge.

EXCURSIONS.

The Memorial Day Excursion, May 26-31, inclusive, was to the eastern slopes of Mt. CHOCORUA, with headquarters at the Piper House, Pequaket, N. H., and was conducted by Mr. Thomas Edward Parker and Mr. Edward Moffette. The party numbered fifty-seven, leaving Boston on Thursday noon. On Friday, despite threatening weather, twenty-one started by the Weetamoo trail for Chocorua Peak, most of the party remaining over night at the Chocorua House, and returning on Saturday down the face of the North peak. On each of the following days the various peaks of the moun-

tain were explored by parties of varying numbers, and all were favored by bright, clear skies. The party returned to Boston Tuesday afternoon.

The thirty-ninth Field Meeting was held on the SUMMIT OF MOUNT WASHINGTON, N. H., July 2 to 9. The party arrived at 6.30 P. M. Saturday, July 2, in the midst of a heavy rain-storm. The temperature was low, and the weather seemed to promise a repetition of the meteorological conditions which confronted the party four years ago, when the Club last held a field meeting on the Summit. The evening was devoted to an interesting talk by Miss Fisher of the geological department of Wellesley College, upon the causes which produced these mountains. Sunday morning, the rain having ceased, and the weather having become sufficiently settled for out-of-door work, most of the company essayed the carriage road to the five-mile post, and were amply repaid by views into the sunlit valleys, and by the magnificence of the clouds which were driven broken over the tops of Clay, Jefferson and Adams.

In the afternoon a party was made up for a walk around a portion of the cone, returning to the summit by the carriage road.

Monday, July 4, opened bright with a good sunrise. At nine o'clock a large party started for the Southern peaks, some to stop at the Lakes of the Clouds and Mount Monroe, the rest to keep on to Mount Pleasant. Both these parties had a successful day.

Three parties were made up for the Madison Spring Hut during the week, under the guidance of Mr. Bickford, going over one day and returning the next.

Tuesday was cloudy with more or less rain, and the exercise of the two previous days had brought some rarely used muscles into play which welcomed a rest; hence most of the party were glad of an excuse to spend a day in quiet. Some, however, varied the restraint of indoors by short expeditions. The "Hut" party of the preceding day returned during the morning wet from their long tramp in the fog and rain.

In the evening there were talks by Mr. W. A. Brooks on the history of the White Mountains, by Mr. E. L. Rogers on the butterflies, and by Mr. J. H. Emerton on the spiders living upon and peculiar to the summit of Mount Washington, and by Professor H. C. Parker on the relative measurements of the heights of mountains.

During the next three days the weather was unusually fine. Thursday and Friday passed without wind or clouds, the atmosphere being unusually clear, leaving nothing to be desired in weather conditions.

On Wednesday a trip was made to Tuckerman's Ravine, a large party going down by the regular path over the head wall; another party descended by the Boott Spur trail, and joined the others at the Club camp at Hermit Lake for lunch. All returned by the head wall during the afternoon.

Thursday morning the party left promptly for the Northern peaks, some to ascend Mt. Adams, others to go to Madison Spring Hut to spend the

night, the remainder to go as far as Spaulding Spring, lunch, and return to the summit during the afternoon. The whole company kept together until Jefferson was reached, when the Mt. Adams party went ahead at a rapid pace. The one for Spaulding Spring made a detour over the top of Jefferson, and met the "Hut" party, which had followed the Gulf Side trail, at the Spring, together with the preceding night's party from Madison Spring which had come over with Mr. Bickford on their way back to the Summit. Those bound for Madison Spring started soon after lunch for that point with the guide. The party for Mt. Adams not only ascended that peak, but kept on to the Hut, and a few ascended Mount Madison; all returned to the summit for dinner (7 P. M.), making the heaviest day's work done by any party that week. Those who went only to Spaulding Spring returned in a leisurely way during the afternoon, enjoying the magnificent scenery.

Friday was devoted to Boott Spur, from which the view of the cone of Washington is superb. Some of the party kept on to Tuckerman's Ravine, but most of the members returned to the summit during the early afternoon.

Early in the morning of Saturday, July 9 (perfect weather still prevailing), the party left the summit, having completed a successful field meeting. Eighty-three persons participated. The guides were Vyron D. Lowe and B. B. Bickford.

Messrs. Taylor, Rogers, and Crosby were the Committee in charge.

The August camp was located in the ALBANY INTERVALE, the tents being pitched near the old mill on Douglas Brook, in a high pasture overlooking the Swift River. Near by was an excellent swimming pool, which added greatly to the pleasure of the camp. The tents were pitched in the usual semicircle, the markee occupying the extreme left of the line. The camp was fortunate in having the services of Mr. and Mrs. Smith of Passaconaway, Mr. Smith acting as guide, and Mrs. Smith as cook, while the younger members of the family served at the table, all giving perfect satisfaction. The total membership of the camp was twenty, while the attendance averaged sixteen. The arrangements were in charge of Mr. Harland A. Perkins.

The party reached camp, having taken train to Conway and mountain wagons to Passaconaway, late in the afternoon of Friday, July 29th, and was soon busy getting settled in the tents, which had already been erected. Saturday morning was spent in further settling, while the afternoon found the party on a walk up Douglas Brook trail into Bear Mountain Notch, visiting Brewster's Camp, and returning the same way. Sunday morning was spent about camp, while in the afternoon a party of twelve went on a ramble to Hedgehog Ledge, a shoulder of Passaconaway overlooking the valley.

Monday morning the real programme began with fourteen on the trail to Chocorua, the balance keeping camp. The summit was reached without incident late in the afternoon, and the night was spent at the Peak House. Tuesday, the party descended the Liberty Trail and returned to camp via

Bolles' "Lost Trail," between Paugus and Chocorua. Wednesday was spent quietly about camp. Thursday, a party of nine and guide ascended Passaconaway via Square Ledge, spending the night very comfortably in the Lodge. Friday morning the return to camp was made, via the Slide and Downs' Brook, two of the party fishing down the brook to the Swift River.

Saturday was again spent about camp, and the next day a party of twelve, leaving at about noon, traversed Bear Mountain Notch to Upper Bartlett, and there took carriages for Livermore. Leaving there late in the afternoon, a stop was made three miles in, at old Camp 5, at the foot of Carrigain. The next morning ten ascended Carrigain, returning in season for dinner, the camp being moved that afternoon about seven miles to Sawyer Pond, on the westerly slope of Tremont. Tuesday morning Tremont was ascended by logging roads, lunch being taken on the summit. The day was perfect, and the views afforded were the best secured on the trip. In the afternoon the party descended the easterly side of the peak, striking Bear Mountain Notch above Brewster's, and returning to Passaconaway in good season for supper. Wednesday all remained at camp, as well as Thursday morning, but the afternoon saw the party on the summit of Potash, where blueberries of enormous size and a thunder-storm of some intensity were enjoyed, all returning thoroughly wet.

Camp was broken Friday morning, the party returning to Boston as it came. One of the pleasantest features of the outing was the evening camp-fires, around which many a happy hour was spent in jest, song, and story.

The Labor Day Excursion party left Boston Friday morning, September 2, arriving at "THE NORTHFIELD," East Northfield, Mass., in time for late dinner. The party numbered twenty-one in all.

Drives were taken to Mount Hermon, Mount Grace, Lovers' Retreat, the Ice Cave and Crag Mountain; and walks to Strowbridge Mountain, Stone Chair, Garnet Rock and Cathedral Pines, to the Connecticut River, Wana-maker Lake and Bonar Glen.

In connection with the drive to Mount Grace, a walk was taken to the Parsons' Reservation of the Club on Bennett's Knob, a spur of Mount Grace, and to the summit of the mountain itself; in connection with the drive to Lovers' Retreat, a walk was taken to Pauchaug Brook; and in connection with the drive to Crag Mountain, the summit of the mountain was climbed. All of the party participated in all of the drives, and nearly all in the walks.

The party left Northfield Tuesday morning, September 6, and arrived in Boston the middle of the afternoon. Mr. Edward Little Rogers was the Committee.

The members of the WALKING PARTY, six in number, gathered at the Iron Mountain House, Jackson, N. H., Wednesday, September 7, 1904. Mr. Harland A. Perkins was the committee in charge. Early the next morning the baggage wagon was packed and off, and the noon train taken

for Bartlett. From there the route was through Bear Mountain Notch to Shackford's in the Albany Intervale, which was reached in season for supper. Friday's journey was through the Swift River trail to Camp 6, thence between Huntington and Kancamagus to the South Fork of the Hancock Branch, then through Greely Notch and down into Waterville, spending the night at Elliott's Hotel. Saturday's walk was through Thornton Gore, with its abandoned farms, to Deer Park Hotel, North Woodstock.

Sunday morning was spent in a walk up the Pemigewasset Valley to the Flume House, the afternoon being passed in rambles to Mt. Pemigewasset and the Pool. With an early start Monday morning, a side trip was made to the Flume, after which the trip over the Franconia Range was made. Mts. Liberty, Haystack, Lincoln and Lafayette were traversed in order, the last two in a blinding storm, and the Profile House was reached before dark. The next morning was spent at Echo and Profile Lakes and Artist's Bluff, the noon train taking the party to the Ravine House, Randolph.

Wednesday's trip included the ascent of Washington via the "Valley Way." The day opened propitiously, but when on Jefferson the party was overtaken by a severe rain and wind storm, and reached the summit thoroughly drenched and cold. The storm, changing to sleet and snow, accompanied by a terrific wind, kept them indoors the following day. Friday opened with a brilliant sunrise, revealing beautiful frost feathers covering every portion of the summit and buildings. As soon as the snow had partially melted, the Bridle Path down the cone was taken as far as the Refuge. Boott Spur was then descended, with a brief halt at Hermit Lake, and Glen Cottage was reached, via the Raymond Path and Carriage Road, in season for lunch. After lunch the entire party was driven to Jackson, where the next day the Walking Party of 1904 became but a pleasant memory.

Some sixty-five members and friends left Boston in special cars on September 17 for the PROFILE HOUSE, via Plymouth and North Woodstock, for a week's tramping over the Franconia Mountains. Mr. George D. Newcomb was the Committee in charge.

Sunday morning was devoted to short walks down to and around Profile Lake, and on to the Clearing; in the afternoon to Echo Lake, Artist's Bluff and Bald Mountain. Monday was Cannon Mountain day. It was a fine clearing morning, and thirty-five members of the party took part in the climb. The return was made in time for dinner, in two parties, one going back by the path, while some returned by a bee-line. Tuesday sixteen left the Profile House at 8.15 for the Flume, intending to return over the Franconia Range. The day was cloudy in the morning, becoming exceedingly stormy in the afternoon, with fierce thunder and lightning. It was a hard tramp for some, but all were safely housed by nine P. M. Wednesday was devoted to short walks and a visit to Lonesome Lake, and Thursday to Lafayette. No especial plan was made for Friday, and on Saturday the party returned to Boston.

EXCURSIONS.

EXCURSIONS.

Date. 1904	Objective Point.	Committee.	Attendance.
Feb. 20-29.	Winter Excursion to Jack- son, N. H.	{ W. R. Davis. Miss C. M. Endicott.	109
May 26-31.	Memorial Day Trip to Mt. Chocorua.	{ T. E. Parker. Edward Moffette.	57
July 2-9.	Field Meeting. Summit House, Mt. Washington.	{ G. W. Taylor. E. L. Rogers. J. Allen Crosby.	83
July 9-Sept. 9.	Camp at Three Mile Island.	{ R. B. Lawrence. Miss M. A. Knowles.	188
July 29-Aug. 12.	Camp at Passaconaway, N. H.	H. A. Perkins.	20
Sept. 2-6.	Labor Day Excursion to East Northfield, Mass.	E. L. Rogers.	21
Sept. 8-17.	Walking Party in White Mountains.	H. A. Perkins.	6
Sept. 17-27.	Fall Excursion, Profile House.	G. D. Newcomb.	72
Total			556

OUTINGS.

Date 1904	Objective Point	Distance Miles	Leader	Attendance
Jan. 2.	Fells, Cascades, Virginia Wood, Red Mill Ravine.	3½	E. L. Rogers.	Storm
9.	Same as above. Snow-shoeing.	3½	E. L. Rogers.	31
16.	Lynn Woods, Forest Castle, Burrill Hill and Boulder Path.	3	T. E. Parker	40
23.	Riverside. Walk in Weston. Snow-shoes.	3	E. G. Chamberlain	31
30.	Endicott, Wigwam Pond and Ridge Hill. Snow-shoes.	4	Edward Moffette	67
Feb. 6.	Greenwood, Rattlesnake Hill, Hart's Hill and Happy Hol- low. Snow-shoes.	2½	H. A. Perkins	24
13.	Riverside. Doublet Hill Woods.	3	E. G. Chamberlain	29
20.	Fairmount, Fairmount Hill and across country to Cross- man's. Snow-shoes.	4	A. D. Wilde.	48
22 (all day).	Lynn, Holder Pond, Happy Valley, Mt. Gilead, Bow Ridge. Camp for lunch- eon.	5	T. E. Parker.	Rain

EXCURSIONS.

79

Feb. 27	Clematis Brook, Owl Hill, Beaver Brook, Cascade and Waverly Oaks.	3½	E. L. Rogers.	34
Mar. 5.	Middlesex Fells from Medford.	4	W. F. Mattson.	61
12.	Blue Hills Reservation, Pine Tree Brook, Chicatawbut Hill. "The Trees in Winter."	3	Hollis Webster.	83
19.	Prospect Hill, Waltham.	3½	E. G. Chamberlain.	50
26.	Lynn Beach and Little Nahant.	3½	T. E. Parker.	66
Apr. 2.	Arlington Heights, Turkey Hill and cross country, Gipsy Moth Colony en route. Talk by Mr. Allen Chamberlain.	4	E. L. Homer.	84
9.	Wellington Hill and Franklin Park.	3½	E. W. Howe.	16
16.	Cross country from Oaklandvale, through Saugus Woods.	3½	A. F. Flint.	23
19 (<i>all day</i>).	Cape Ann, Lanesville, along shore to Rockport.	5	{ G. D. Newcomb. J. A. Crosby. A. D. Wilde.	277
Apr. 23.	Waltham, Worcester Pines and Prospect Hill Park.	4	F. V. Fuller.	81
30.	Dedham, Cat Rock, Strawberry Hill and Charles River.	4½	Edward Moffette.	45
May 7 (<i>all day</i>).	Over the Blue Hill Range, two parties.	9	Edward Moffette.	63
	(<i>afternoon</i>). Joining all day party at foot of Hancock.	3	George D. Newcomb.	90
14.	Saugus, The Johnson Preserve and Bear Hill.	3	Harland A. Perkins.	52
21.	Wellesley, Morse's Pond and Lake Waban.	4½	W. A. Brooks.	100
28.	Lexington, Shaker Glen, Trolley to Woburn.	3	E. L. Homer.	56
30 (<i>all day</i>).	Carlisle Pines.	6	E. L. Rogers.	48
June 4 (<i>all day</i>).	Canobie Lake and Cobbett's Pond, Dinsmore Hill, Wynnewood Cabin.	5	H. A. Perkins.	15
	(<i>afternoon</i>). Islington, Hawes Hill, Flax Pond and Everett Hill.	3	Edward Moffette.	52
11	West Hingham, Weymouth River, Baker's Hill.	4	T. E. Parker.	65
17 (<i>all day</i>).	Salem, Marblehead, Baker's Island, Sail along North Shore.		{ G. D. Newcomb. J. A. Crosby. A. D. Wilde.	143

June 18.	Lynn Woods, Holder's Pond, Burrill Hill.	4	Arthur M. Allen.	60
Sept. 10.	Lynn Woods, The Lantern, Breed's Pond.	3½	T. E. Parker.	23
17	(all day). Trolley trip Boston to Marblehead. (afternoon). Longfellow's Pond, Maugus Hill.	4	E. L. Rogers.	32
24.	West Quincy, Pike's Peak.	4	E. G. Chamberlain.	20
Oct. 1	(all day). Carlisle Pines.	6	E. L. Rogers.	42
	(afternoon). Dedham, Fox Hill, Sandy Valley.	3	E. L. Rogers.	28
8.	Annual Blue Hill party.		Edward Moffette.	31
			John Ritchie, Jr.	34
Oct. 8	(afternoon). Blue Hill party.		A. R. Bailey.	26
15	(all day). Dedham, King No- nets Country. (afternoon). Marblehead, Shore of Salem Harbor.	4	Edward Moffette.	30
22	(moonlight). Cross Country Walk, Belmont to Arlington Heights, Supper at Robbins Spring Hotel.	3½	N. Allen Lindsey.	73
29.	Doublet Hill.	4		
Nov. 5.	Lynn Woods, Ox Pasture Road to Wolf Pits.	3	G. D. Newcomb.	91
8	(all day). Danvers, Ferncroft Dales and Bare Hill. Ips- wich River to Mr. Hubon's Camp.	5	E. G. Chamberlain.	56
12.	Middlesex Fells, Winchester Reservoir.	5	A. R. Bailey.	48
19.	Lynn Woods, Prospect Hill, Bartholomew's Pond and Ledges, Bow Ridge. Camp for Luncheon.	5	{ W. P. Hubon. H. A. Perkins.	60
26.	Greenwood Grove, Balanced Rock and Forest Hill, Wake- field.	4	E. L. Homer.	73
Dec. 3.	Blue Hills Reservation, Brain- tree Pass and Quincy Water Reserve.	4	A. R. Bailey.	107
10.	Wellesley Hills, Hundreds Woods.	3	H. A. Perkins.	70
17.	Ashcroft, Old Chestnut Trees, Weatherbee's Brook.	4	E. R. Olin.	62
24.	West Quincy, Rattlesnake Hill.	3½	W. A. Brooks.	36
		3½	Edward Moffette.	42
		3½	E. L. Rogers.	15

Dec. 31.	Wyoming, Fells, Cascade and Pine Banks.	34	H. A. Perkins.	35
	Total attendance, 8 excursions		556	
	51 outings		2868	
			<hr/>	
			3424	

The following comparative statement may be of interest :

1898.	Total attendance	42	Outings	1340	Average	41.
1899.	"	"	44	"	1648	" 36.
1900.	"	"	44	"	1714	" 37.
1901.	"	"	43	"	1687	" 39.
1902.	"	"	46	"	1688	" 38.
1903.	"	"	45	"	2527	" 57.
1904.	"	"	51	"	2868	" 56.

GEORGE W. TAYLOR, GEORGE D. NEWCOMB, ALBION D. WILDE, EDWARD LITTLE ROGERS, EDWARD MOFFETTE, HARLAND A. PERKINS, T. EDWARD PARKER,	} } } } } } }	<i>Committee on Field Meetings and Excursions.</i>
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Report of the Room Committee for 1904.

It gives the Room Committee pleasure to report that there has been no diminution in the popularity of the Club Rooms. During the spring months the rooms were open afternoons as heretofore under the charge of members of the Club as custodians. The same system was continued after the summer vacation, but as the increase in the clerical work of the Club has necessitated the employment of a stenographer, it has been possible since September to keep the rooms open from 10 A. M. to 5.30 P. M. with the exception of half an hour at noon. The rooms are closed Saturday afternoons under present arrangements, but as experience has shown that few members used them at that time, this has apparently caused no inconvenience, whereas the fact that during the remainder of the week the rooms are open substantially all day has been a convenience which members have appreciated. To those who have so faithfully given their services as custodians the committee feels that its thanks and those of the Club are justly due.

On the afternoon of November 17 the Snow-shoe Section held its annual meeting in the Club Rooms, and the meetings of the Council and of the various committees and reunions of excursion parties have been held there as

heretofore. As there have been occasional conflicts between such meetings, an engagement-book has been provided for the rooms, and in the future any committee may secure the use of the rooms by registering for the desired date. It is hoped that this method will prevent the inconvenience which has arisen in the past from different committees not being cognizant of each other's plans in this regard.

The President's annual "at home" on May 16 furnished the occasion for an extremely interesting exhibition of monotypes of American and foreign scenery by Mr. H. H. Robinson of Brookline, and at the Room Committee's "at home," December 5, Mr. Walter L. Chaloner exhibited some of those sketches of outdoor life for which he is justly famous. Both exhibitions continued through the week, and were visited by many members and friends of the Club. There were also on exhibition at the rooms during the early part of December three volumes of photographs taken on the last summer's outing of the Sierra Club in Yosemite Valley and Park.

Two exhibits of tramping outfits have also been held in the rooms under the auspices of the Department of Exploration and Forestry. The former of these, May 27 to June 4, was devoted to outfits for camping and summer climbing; the latter, December 14 to 20, to snow-shoe and winter outfits. The Cambridge Entomological Club gave an exhibition of insects in our rooms November 16 to 19.

During the year the rooms have been given a thorough cleaning under the Committee's direction, and a few minor but much needed improvements, such as new shades and new cushion-covers, have been provided. The electrical fixtures have also been altered so as better to light our pictures and the nets so often used at our receptions. The report of the Corresponding Secretary and Librarian calls attention to the fact that the Club has in that department outgrown its present accommodations. This is no less apparent from the Room Committee's point of view. Under favorable weather conditions "at homes" are too crowded for comfort, and lack of adequate storage room is becoming only too evident. The good appearance of our rooms can be insured under present crowded conditions only by a strict adherence to the maxim of "A place for everything and everything in its place."

Respectfully submitted,

FREDERIC GILBERT BAUER,
MABEL C. CHESTER,
ANNA E. LANNING,
L. LOUISE TARLTON,
MARTHA A. VINAL.

} *Room
Committee.*

Proceedings of the Club.

May 11, 1904. — Two hundred and thirty-seventh Corporate Meeting ; held at 22 Walker Building.

President Ritchie in the chair.

One hundred and fifteen persons were present.

Mr. A. H. Kirkland, M. S., gave an illustrated lecture entitled "Shade Trees and their Enemies." Much information was given concerning the habits of destructive insects, particularly the gypsy, tussock, and brown-tail moths and the elm-tree beetle. The speaker also described the injury caused by other enemies, such as horses, gas mains, electric wires, both light and feed. Spraying and other preventive methods were mentioned, including the importation of parasites. The illustrations were interesting, some of the moths being very beautiful.

May 18, 1904. — Special Meeting ; held at 22 Walker Building.

President Ritchie in the chair.

The attendance was one hundred and sixty-five.

Dr. E. H. Bradford of Boston addressed the Club on "Foot and Foot-wear." By means of a large number of lantern views, he showed the feet of the saurian, mammoth, ourang, baboon, gorilla, savages of various races and modern civilized man. He then illustrated different kinds of gait and several deformities of the feet. Finally pictures were shown of shoes, and valuable advice given : that young children should wear moccasins, and that adults might use either of two kinds of shoes, — one fashionable and the other useful, the latter allowing the joints of the fore part of the foot ample room to work naturally.

June 8, 1904. — Two hundred and thirty-eighth Corporate Meeting ; held at 22 Walker Building.

President Ritchie in the chair.

One hundred and forty-five persons were present.

The President announced the decease of Colonel Charles W. Folsom, a charter member of the Club and its Treasurer in 1879, 1880, and 1881, and of Miss Ellen J. Baker, who joined in 1876, the first year, and whose ardent interest in the Club's welfare had continued till the end.

Mr. Charles H. Ames brought to the Club's attention a tract of primeval forest, consisting of a thousand acres, in the vicinity of Mt. Pisgah in Hinsdale and Winchester, in southwestern New Hampshire.

Mr. Arthur A. Shurtleff, landscape architect, presented an illustrated paper entitled, — "The Story of the Metropolitan Park System." By diagrams and maps the topography of the Boston Basin was described in detail and the evolution of the Park System thus explained. The great work of Charles

Eliot in recognizing the possibilities and awakening the public was emphasized, and the part which our Club took in the movement was mentioned. The views were well selected to illustrate the points made by the speaker.

July 2-9, 1904. — Thirty-ninth Field Meeting ; held at the Summit House, Mount Washington, N. H.

During the Field Meeting on Mount Washington, July 2-9, two evenings were devoted to the reading of papers. The first of these was Saturday, July 2. Meeting was called to order at eight o'clock P. M. President Ritchie was in the chair and Mr. F. H. Burt acted as Secretary.

In opening the meeting the President referred to the condition of weather and climbing on Mount Washington, with advice to the members with reference to the excursions. After announcements of the proposed excursions, Mr. Ritchie introduced the first speaker of the evening, — Miss Elizabeth F. Fisher, professor of geology in Wellesley College, who with the aid of a blackboard gave a graphic description of the formation of mountains by upheaval and of their change of structure by erosion and other agencies which created valleys and water-courses, thus establishing the geographic features of the country.

Mr. William A. Brooks of Wellesley Hills followed with an interesting talk on the history of the White Mountains, presenting the leading events in chronological order from the first ascent of Mount Washington by Darby Field in 1642, with personal mention of the pioneers and explorers of later days.

On Tuesday evening, July 5, the second meeting was called to order, and informal talks were given by Mr. E. L. Rogers on "The Butterflies of Mount Washington," by Mr. J. H. Emerton on "Mount Washington Spiders," and by Prof. Herschel C. Parker on "The Science of Mountains: their Classification and Measurement."

Of these papers Professor Parker's Classification of Mountains and Professor Emerton's lecture on spiders have been published in full in "Among the Clouds."

October 5, 1904. — Special Meeting; held in Huntington Hall.

President Ritchie in the chair.

About three hundred and fifty persons were present.

Mrs. Fanny Bullock Workman, F. R. S. G. S., a Corresponding Member of the Club, gave an illustrated lecture entitled "First Exploration of the Great Chogo Loongma Glacier, and Other High Ascents in the Mustagh Range, Northwest Himalaya."

During the past few years Mrs. Workman and her husband, Dr. William Hunter Workman, have been engaged in scientific investigations and surveys in the mountains of India and incidentally have climbed several high peaks. The paper of this evening was substantially the article which appeared in the last number of APPALACHIA, but it was a rare treat to mem-

bers to see the writer and hear from her own lips the intensely interesting account of her experiences. Mrs. Workman first located upon the map the region explored, described the characteristics of the country and the coolies, and then by the aid of numerous fine lantern views explained at length the explorations of the party upon the great glacier and its neighboring peaks and passes.

October 8, 1904. — Special Meeting ; held in Huntington Hall.

President Ritchie in the chair.

About two hundred and fifty persons were present.

The evening was devoted to the explorations in the Himalayas of Dr. and Mrs. William Hunter Workman.

Although it had not been announced upon the call for the meeting, the President prevailed upon Dr. Workman to address the Club. He gave an account of their explorations of the Hoh Lumba Glacier and described the ice-fall and moraines. He showed several fine views.

The main paper was by Mrs. Workman, entitled "Record Ascents in the Northwest Himalaya." With three Italian guides and many coolies camps were established at high altitudes, 16,000 to 19,400 feet, upon the Chogo Loongma Glacier, and from those camps new passes and peaks were reached.

The records of other climbers were surpassed, and on Mt. Loongma the Workmans surpassed their own record. Leaving their high camp at 3 A. M., they reached at an early hour the first summit, 21,500 feet, and not long after, the second, 22,568 feet. Dr. Workman and the guides continued, reaching an altitude of 23,400 feet. These remarkable experiences were illustrated by numerous pictures of magnificent mountain scenery, undoubtedly the finest views ever exhibited to our Club.

October 12, 1904. — Two hundred and thirty-ninth Corporate Meeting ; held at 6 Lowell Building.

President Ritchie in the chair.

On account of the storm the attendance was only sixty-nine.

The President referred to the decease of Mrs. Alfred T. Haskell (Susanna Saunderson), an ardent member and actively interested in the social features of the Club.

The following committee to nominate officers for the ensuing year were appointed: Prof. William H. Niles, Chairman, Mr. Allen Chamberlain, Mr. Edward Little Rogers, Mrs. Delia L. Viles, and Miss Mabel C. Chester.

In introducing the speaker of the evening the President referred to the influence which geographical features of the country had upon the campaign of Stonewall Jackson during the Civil War.

The address of the evening was by Prof. William H. Niles, and the subject, "The Mountains and Plains of Asia in their Relation to the Destiny of Nations." The speaker laid down two primary propositions. First: That uncivilized people are mastered by the mountains among which they live,

while civilized people conquer the mountains by engineering. Second: In considering the subject size counts. Geographical conditions show their influence best in Asia, where the mountains are high and the plains extensive. The speaker then described the great mountain ranges, the high plateaus, the deserts, plains and steppes, and the extensive morasses of the Asiatic continent; and showed how these geographical features and their respective climates had influenced the various races of inhabitants.

He also showed how the history of India, the exclusiveness of China, and the expansion of Russia over Siberia resulted from these physical features. Finally, he spoke of the conflict now going on in Manchuria between Russia and Japan, and of the still greater conflict which may sometime follow in the interior of the continent.

November 10, 1904. — Two hundred and fortieth Corporate Meeting ; held at 6 Lowell Building.

President Ritchie in the chair.

About one hundred and sixty-five were present.

Frederic V. Fuller was elected Secretary pro tempore.

The President called attention to the fact that a distinguished European geographer, Dr. Albrecht Penck of Vienna, was present, and invited him to say a few words. Dr. Penck responded by stating that he felt quite well acquainted with the Club through its publications and enjoyed coming face to face with its members, and that he had climbed with much profit our Rocky Mountains in his study of glacial action.

Prof. George H. Barton gave an illustrated talk on "The Topographical Features of Massachusetts." He alluded to the agencies which transformed the earth's surface, — ice, the action of growing things, decomposition by acids from the atmosphere brought down by rains, the mechanical action of rain, and the two ways in which rivers act, by cutting and wearing. These phases of action were all clearly shown in his lantern views.

The Connecticut valley was once an inlet from the sea. Mts. Tom and Holyoke are one mass of lava cut in two. Originally New England was wholly covered with ice, and its glaciers moved from north to south, making all of our rocky hills smooth and sloping on their northerly sides and abrupt and ragged on their southerly sides.

He cited instances of the constructive action of ice and water, and said that we were indebted to the ice age for the most beautiful feature of Boston Harbor, its islands, which are part of the eighteen hundred drumlins found scattered about Massachusetts.

November 17, 1904. — Special Meeting ; held at 22 Walker Building.

President Ritchie in the chair.

About three hundred and twenty-five persons were present.

On calling the meeting to order the President introduced Mr. Sumner R. Hooper, the title of whose paper was "Northern Maine ; from Moosehead

Lake to Fort Kent." Mr. Hooper leads each year a party of boys through the wilds of Maine along the numerous lakes and water-ways to the north of Moosehead Lake, and his paper was a recounting of the features of the various trips. The experiences of running the quick waters, sailing the quiet areas, poling the rapids and "toting" over the carries, with stories of a spill here and there, a delightful camp on the bank or a sojourn at some primitive backwoods hostelry, gave added piquancy to the story, illustrated at every point with rare out-of-doors views, in which the moose, the deer, and other denizens of the wild were in evidence. The natural scenery, interesting incidents, the habits and customs of the natives, bipeds as well as quadrupeds, formed the text of an exceedingly bright and popular paper.

November 21, 1904. — Special Local Meeting ; held in the rooms of the Aldine Association, 111 Fifth Avenue, New York City.

Forty-four persons were present.

To facilitate the acquaintance one with another of the large number of members in and near New York City, the President of the Club was tendered a reception by the New York members.

After an informal reception the party sat down to dinner, at the close of which there were a number of speeches. The President, after expressing his appreciation of the fact that so many were present, outlined the history of the Club, and called upon Prof. William Hallock for remarks or reminiscences. Professor Hallock spoke of pleasant journeys with the Snow-shoe Section in the White Mountains, and was followed by the Rev. Harry P. Nichols, who went back to the earlier days of the Club, with some account of his more recent wanderings in the Pemigewasset forests.

Mr. Harrington Putnam spoke pleasantly as a member of the New York committee, and Swami Abhedananda closed the after-dinner speeches by reference to the various excursions which he had attended.

Following the dinner Prof. H. C. Parker showed some forty lantern views of the White Mountains and the Canadian Alps, with brief remarks in explanation.

Hopes were expressed by the members present that the occasion should be but the first of a long series of reunions of the New York members.

December 8, 1904. — Two hundred and forty-first Corporate Meeting ; held at 6 Lowell Building.

President Ritchie in the chair.

Two hundred and ten persons were present.

The President appointed the following a committee to audit the accounts of the Treasurer and Trustees of Permanent and Reserve Funds : Mr. A. E. Duffill, chairman ; Mr. F. W. Stone, and Mr. Russell A. Ballou.

Mr. François E. Matthes, of the United States Geological Survey, addressed the Club on the subject, "Across the Grand Canyon by a New Trail." The speaker, for two years employed in surveying the Grand

Canyon and surely more familiar with its features than any other man, described the different plateaus of the region, the various strata exposed to view, and narrated his experiences in crossing the river and ascending the Bright Angel Canyon. By means of the lantern, maps and diagrams were thrown upon the screen, together with many views of the grand scenery.

December 15, 1904. — Special Meeting; held in Huntington Hall.

President Ritchie in the chair.

About seven hundred persons were present.

The Committees having charge of the Field Meetings and Excursions, the Snow-shoe Trip and the Club Camp at Three Mile Island, presented their reports. The subjects and the speakers were as follows : Snow-shoe Trip to Jackson, Mr. W. R. Davis ; Memorial Day Excursion to Chocorua, prepared by Mr. T. E. Parker and read by Mr. Edward Moffette ; the Field Meeting on Mount Washington by Mr. G. W. Taylor ; Three Mile Island by Mr. R. B. Lawrence ; August Camp at Passaconaway by Mr. H. A. Perkins ; Labor Day Excursion to Northfield, Mr. E. L. Rogers ; Autumn Excursion to the Profile House, Mr. G. D. Newcomb ; September Walking Party, Mr. H. A. Perkins. The lantern slides made, and many of them colored, by Mr. E. L. Rogers, proved to be beautiful and interesting illustrations of the different excursions. The attendance was very large, and the occasion offered an opportunity for the members of various parties to meet each other.

The substance of the several papers is incorporated in the Report of the Excursion Committee (see p. 73).

The President appointed the following Committee on the Annual Reception : Mr. Edward Little Rogers, chairman, Mr. Charles N. Mason, Miss Martha A. Knowles, Miss Martha A. Vinal, and Miss Maud Appleton.

January 11, 1905. — Two hundred and forty-second Corporate [Annual] Meeting; held in the Lecture Hall of the Boston Society of Natural History.

Vice-President Chamberlain in the chair.

The attendance, including ten ex-Presidents, was eighty-five.

The reports of the Councillors of Natural History, Topography, and Art were read and accepted ; also the Report of the Room Committee.

The Annual Reports of the Recording and Corresponding Secretaries, Treasurer, Trustees of the Permanent and Reserve Funds, Auditors and Trustees of Real Estate were presented, and it was voted that they be accepted and placed on file.

The report of the Committee to nominate officers for 1905 was presented by Prof. William H. Niles, and, upon ballot being taken, the following candidates were elected : —

For President, Charles E. Fay ; for Vice-President, Rest F. Curtis ; for Recording Secretary, Rosewell B. Lawrence ; for Corresponding Secretary, Frederic G. Bauer ; for Treasurer, Rufus A. Bullock ; for Councillors :

Natural History, Hollis Webster ; Topography, Frederic V. Fuller ; Art, Martha A. Vinal ; Exploration and Forestry, Harlan P. Kelsey ; Improvements, Harland A. Perkins ; for Trustees of Permanent and Reserve Funds (for three years), Charles H. French ; Real Estate (for four years), J. Rayner Edmands ; Real Estate (for two years), Edward F. Stevens.

With remarks fitting the occasion Prof. Charles E. Fay assumed the presidency for the fourth time in the Club's history.

January 17, 1905. — Special Meeting ; held in Huntington Hall.

President Fay in the chair.

About two hundred persons were present.

Mr. Clarence J. Messer, formerly connected with the "Boston Transcript," gave an illustrated lecture entitled, "The Valdes Trail, Alaska."

The speaker went over this trail as a newspaper representative in the early days of the Alaskan gold excitement. The lecture was replete with adventures and severe experiences encountered in surmounting the difficulties of the trail, and many of the views shown were fine illustrations of glacial and mountain scenery.

January 24, 1905. — Special Meeting ; held in Huntington Hall.

President Fay in the chair.

About two hundred and fifty persons were present.

Ex-President Harvey N. Shepard gave an account of his trip last summer in Switzerland. Several passes and minor summits were climbed. A large number of lantern views were thrown upon the screen, showing Basle, Falls of the Rhine, the Engadine, Pontresina, Bernina Pass, Lugano, St. Gotthard, Rigi, Andermatt, Furka Pass, the Grimsel and the Great Scheideck.

February 14, 1905. — Two hundred and forty-third Corporate Meeting ; held in Huntington Hall.

Vice-President Curtis in the chair.

The attendance was about two hundred.

The evening was devoted to the Canadian Rockies, the lantern being used.

Rabbi Charles Fleischer addressed the Club, giving "Impressions of the Canadian Rockies and the Ascent of Mt. Fay."

With the aid of the lantern the speaker endeavored to reproduce something of his own impressions upon several of his excursions among the mountains and lakes of this magnificent region. The trips described included a crossing of Abbot Pass from Lake Louise to Lake O'Hara, returning by the new trail to Hector station ; a two days' trip to the Yoho Valley ; and the second ascent of Mt. Fay from camp at Moraine Lake, the first having been made a few days previously by Miss G. E. Benham of England over a somewhat different route. This peak, 10,635 feet high, is No. 1 of the

Ten Peaks, and was found to be entirely on the watershed of the continent.

President Charles E. Fay then presented in brief outline the minor explorations made in recent years in the Canadian Rockies within easy walking distance of hotel bases, particularly from Lake Louise and Field. He described his own exploration of the high pass (about 9,400 ft.) between Mt. Stephen and Cathedral Peak, made in the summer of 1903. North of the railway a similar round trip, made in two days by the speaker and his party in 1903, was narrated and profusely illustrated : via Sherbrooke Valley to the summit of Mt. Daly ; thence westward, over the Takakkaw glacier, and down the steep wall from which its stream plunges in the fall of that name to Yoho Valley. Incidentally the speaker's ascent of Mt. Temple by a new route in the summer of 1904 was reported.

March 8, 1905. — Two hundred and forty-fourth Corporate Meeting ; held at 22 Walker Building.

President Fay in the chair.

In the absence of the Recording Secretary, Mr. Frederic G. Bauer was elected Secretary pro tempore.

The speaker of the evening, Mr. Frank Edward Johnson, presented " Norway, its Fjords, Mountains, and Glaciers," treating especially that part of the country which the traveller sees in taking the voyage to the North Cape, by one of the smaller coastwise steamers. He first described the Hardangerfjord, the largest of the fjords. Not less interesting than the scenery, however, were the curious customs of the peasants along its shores.

The audience were then taken by way of historic Bergen through the Sognefjord and Nordfjord to Olden Lake, and shown several views of the picturesque life of the peasants, notably their saeters or herdsmen's chalets, sometimes several thousand feet above the cottages on the shore. The Jostedalstraë, the largest glacier of Europe, and Svartisen, which with the Folgefond form the three great glacier systems of Norway, were next described, as was the valley of the Romsdal with its surrounding mountains. The Lofoten Islands, famous for their fisheries, and the town of Tromsø, whence the interesting settlements of the Lapps may be visited, Hammerfest, well within the land of the Midnight Sun, and North Cape, completed the itinerary of the evening.

After a brief intermission the lecturer showed a few pictures of the old Runic stones and of the Stavekirke of Borgund.

March 16, 1905. — Special Meeting ; held at 22 Walker Building.

President Fay in the chair.

About one hundred and fifty were present.

Mr. Edward Little Rogers presented the result of his recent experiments in color photography, with illustrations of the several processes by which imita-

tions of tint were reproduced through chemical means. The resultant picture consisted of three films, stained with the colors complementary to the primary spectral colors, superimposed on one another and viewed by transmitted light.

Mr. J. H. Emerton gave an instructive lecture on "Spiders." Their structure, habitat, and manners were discussed at length. Certain species most likely to be found on mountain heights were mentioned. Among the numerous lantern pictures were several beautiful views of cobwebs, illustrating the ingenious ways in which they are constructed with a view to strength and effectiveness.

April 11, 1905. — Two hundred and forty-fifth Corporate Meeting ; held at 22 Walker Building.

Vice-President Rest F. Curtis in the chair.

The attendance was about three hundred.

In view of the death of Mr. George W. Taylor, Mr. Edward Little Rogers made the following announcement : " At a special meeting of the Committee on Field Meetings and Excursions of the Appalachian Mountain Club, held in the Club Rooms, Monday, April 10, 1905, it was Resolved : — that by the death of our Chairman, Mr. George W. Taylor, we have lost a valued counsellor, companion, and friend. In our business and social relations we always found him loyal, consistent, upright, and painstaking. We deeply and sincerely mourn our loss."

The subject of the lecture for the evening was " Hawaii, past and present, scenery and peoples," and the speaker, Professor George H. Barton, who visited Hawaii last season after an absence of twenty-one years. He introduced the subject by telling of the voyage and exhibiting a map of the islands, pointing out and describing briefly the eight leading ones ; then followed a description of the island of Oahu, the extinct crater Diamond Head, and the great *pali*, or precipice. A description was also given of the island of Maui, with its great extinct volcano of Haleakala, and of the famous Iao valley.

The larger part of the lecture was devoted to the island of Hawaii and its famous volcanoes of Mauna Loa, Manna Kea, and Kilauea, together with the lava-flows of 1880-81 and of 1899 ; the latter portion to the native people, their customs and costumes, and to the royal family.

A large number of lantern views were exhibited, some of them taken many years ago, and many of them taken by Professor Barton's party last summer. There were also on exhibition various articles brought home by Miss Agnes W. Lincoln.

April 18, 1905. — Special Meeting ; held at 22 Walker Building.

President Fay in the chair.

The attendance was about two hundred and seventy-five.

The three papers presented all dealt with the White Mountain region, so that the meeting reminded the members of the early days of the Club.

Mr. George N. Whipple gave "A Winter's Ascent of Mount Washington through the Great Gulf." (See p. 7.) A vivid description of the difficulties and dangers of the ascent was given, together with interesting incidents. Lantern views illustrated the trip and particularly the slope where the ascent was made.

Professor Herschel C. Parker described "A Day's Trip over the Presidential Range." (See p. 13.) The trips of a single day previously made did not include Webster and Jackson. Professor Parker and his companion were twenty-two hours in going over all the peaks and returning to the Crawford House, eighteen hours being the travelling time. While describing this trip Professor Parker threw upon the screen a large number of winter views taken upon the great range, the light effects and coloring being unusually fine.

Rev. Raymond M. Dow Adams presented a paper entitled "Registers of the Appalachian Mountain Club." (See p. 40.) This interesting paper began with a description of the view from Mount Prospect, in Lancaster, N. H., and closed with that of the view from Mount Lafayette, whose panoramas embrace most of the White Mountain summits on which registers have been located. The first Club bottle was placed by Mr. W. G. Nowell, July 22, 1876, on the summit of Mount Adams. The speaker stated that he had examined and filed eighty-nine record rolls and five books. He described some of the records, giving a few quotations, and offered recommendations concerning the use and care of such records.

Brief remarks were made by Professor W. H. Pickering, Mr. W. G. Nowell, Professor W. H. Niles, and Mr. F. H. Burt.

April 25, 1905. — Special Meeting; held in Huntington Hall.

President Fay in the chair.

About seven hundred people were present.

Mr. Herbert W. Gleason gave a lecture entitled "Alpine Flowers of the Canadian Rockies." He showed about 150 slides, including six panoramas, all being colored except the panoramas; of this number 110 were pictures of wild flowers, including Alpine species found on the mountain summits and higher slopes and in close proximity to the glaciers, as well as those found in the valleys. Most of the pictures gave the flowers in detail, while a dozen or more showed groups of flowers in their landscape surroundings. The remaining slides were scenic views of Lake Louise, Paradise Valley, Lake O'Hara, Field, and Glacier, representing the homes of the flowers. The pictures were not only interesting, but remarkably beautiful, the coloring being unusually successful.

May 10, 1905. — Special Meeting; held in Huntington Hall.

There were present about four hundred and forty persons, including members of the Institute Faculty, Society of Arts, Boston Society of Civil Engineers, and Harvard Travellers' Club,

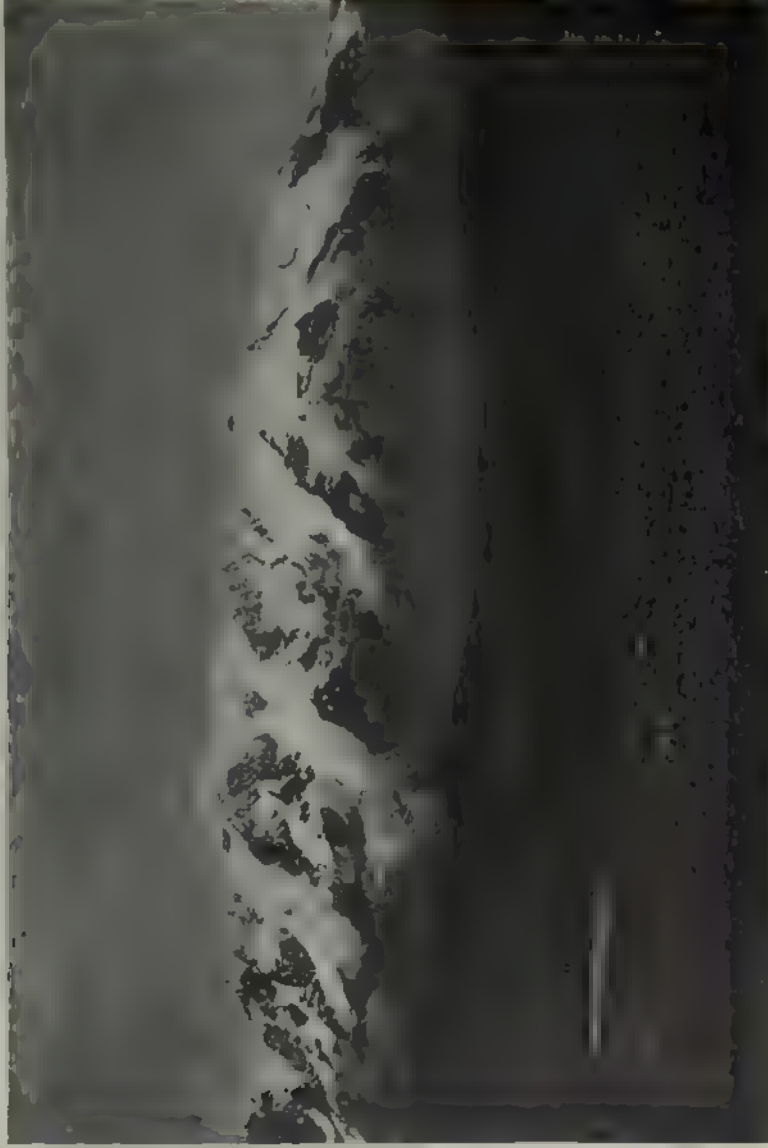
Mr. Arthur O. Wheeler, Topographer of the Topographical Survey of Canada, gave an illustrated lecture entitled "A Bird's Eye View of the Rockies and Selkirks of Canada." The work of Mr. Wheeler is the most notable application of the photographic method in surveys, and he showed upon the screen some diagrams and views illustrating his work. A large number of lantern views were shown, embracing all the well-known regions of the Canadian Rockies and Selkirks. The speaker mentioned many ascents made by himself and others during the past twenty years, and paid a tribute to Sir James Hector and several climbers of our own Club, for whom mountains have been named. As a representative of the Department of the Interior of the Dominion of Canada, he extended a cordial welcome to visit the region of the Canadian Alps.

May 17, 1905. — Two hundred and forty-sixth Corporate Meeting; held at 22 Walker Building.

President Fay in the chair.

The attendance was about two hundred and forty.

Mr. William A. Brooks gave an illustrated lecture entitled "Ktaadn and the Penobscot Lakes." Beginning with a quotation from Thoreau, which prepared the audience for a trip into the Maine wilderness, and with an account of the early explorations, the speaker then, by a series of interesting slides, illustrated the scenery of Moosehead and Chesuncook Lakes, Ripogennis Gorge, the rapids and falls, lakes and stillwaters of the West Branch of the Penobscot. The ascent of Ktaadn was made by the southwest slide, and the table land, peaks and basin were described.



VIEW OF THE SORATA RANGE FROM BETWEEN ACHA CACHE AND SORATA.
From a photograph by W. G. T. Ght.

APPALACHIA.

VOL. XI.

BOSTON, MAY, 1906.

No. 2.

Climbing Mount Sorata.

BY ANNIE S. PECK.

Read October 11, 1905.

SOON after my ascent of Orizaba in Mexico in 1897, Mt. Sorata, one of the giants of the Bolivian Andes, was brought to my attention as possibly the highest mountain on this hemisphere, its yet untrodden summit having been variously estimated as from 21,000 to 25,000 feet above the sea. To verify the height of this great mountain and ascertain whether it were indeed superior to Aconcagua, to make meteorological, geological, and any other observations possible in a brief visit seemed to promise a worthy contribution to science. At the same time, should the mountain rise to its greatest possibilities, to reach a higher point than anywhere man had previously stood seemed also worthy of a sportsman's efforts; in a small way, like Peary's getting a degree nearer to the North Pole.

To the adventurous lover of exploration among untrodden and unknown heights, South America offers a field unparalleled, save in the Himalayas. The Andes, however, only one or two hundred miles from the west coast, are far more accessible. Their difficulties, though grave, are by no means unsurmountable. Yet in addition to the ordinary dangers of the Alps, whereby one's neck may be broken in a variety of ways, this region has troubles of its own. The extreme and unaccustomed altitude is an embarrassment, even to the experienced and expert mountain climber. Mountain sickness, in South America called *so-roche*, attacks most persons at a height of from 10,000 to 20,000 feet, usually in the form of a headache, with fever, nausea, or vomiting, at times with hemorrhage, apoplexy, or heart failure,

any of which may prove fatal. What persons will best endure the strain of great altitudes cannot be ascertained absolutely in advance. Yet it is obvious that with a perfect heart, strong lungs, good digestion and sound tissues the risk is decreased to the minimum.

Another difficulty to be met with is the excessive cold. While the temperature is not so low as in the polar regions, the fact that, from the diminished supply of oxygen, the fires within burn low, renders greater the liability to frozen feet and general suffering. Fearing this more than anything else, I made careful preparations. In addition to a profusion of ordinary woolen clothing and underwear, I carried, at the suggestion of Commander Peary, an Eskimo suit brought by him from the polar regions and kindly loaned by Professor H. C. Bumpus, Director of the New York Museum of Natural History.

As it was my purpose to make the expedition of scientific interest by observations in the line of geology, geography and meteorology, as by others of physico-medical character, showing the endurance and the varying capabilities of the human frame, we carried a number of scientific instruments: two mercurial barometers, one of them (made especially for me) reading down to ten inches; two hypsometers, or thermometers for boiling, as the temperature at which water boils indicates the pressure of atmosphere and so the height above sea level; two aneroid barometers, designed for comparison with the others; three psychrometers to measure the humidity of the air, clinical thermometers to take our temperatures, a sphygmograph to ascertain the strength and character of the pulse, a sphygmomanometer to measure the blood pressure, and a transit instrument also to measure the height of Sorata. The last three instruments were provided by the scientist of the party.

Further, we prepared to experiment with the use of oxygen, carrying materials for its manufacture, and to contain the gas large bags furnished by the Davidson Rubber Company of Boston.

After five years' planning and fruitless endeavor, during which period an attempt upon the mountain had been made by Sir Martin Conway, the way was suddenly opened, and on the 16th of June, 1903, I sailed away from New York in quest of my

long desired goal. With the companionship of a stalwart scientific man and of two Swiss guides, one of whom was familiar with the country and the mountain I proposed to visit, I felt no misgivings as to the result, especially as hitherto I had always been favored of fortune and my every undertaking of importance had been crowned with success. But we have heard that of too much success the gods are jealous. At all events, on this occasion they frowned.

The journey from New York to Mollendo, Peru, scheduled for twenty-five days, consumed a week longer. The ride from the coast up to and over the western range of the Andes is one of novelty and interest, at times of beauty and grandeur; but to pass within sixty hours from the sea to an altitude of 14,666 feet is sufficient to disturb the interior economy of all save the soundest constitutions. Those, however, who are in any way affected often seem loath to acknowledge that it is *soroche*, preferring to believe that it is merely a coincidence that they fall ill at this elevation. So when our scientist, who labored under the disadvantage of being but thirty odd hours from Mollendo, was attacked with a violent sick headache, he too believed that he would have been afflicted just the same at a lower elevation; and certain it is that at Lima he was in like distress. The rest of us suffered no discomfort, and having passed the night on board ship at the dock at Puno, we sailed all day across the noble lake Titicaca, fourteen times the size of Lake Geneva, and 12,500 feet above the sea. In a magnificent range of snow-clad mountains to the east, among which Mont Blanc would be lost among the foot hills, we had our first view of great Sorata, which even to the guides looked formidable and well worthy the preparations for its conquest.

From the port of Guachi a railroad leads towards La Paz. After a comfortable three hours' ride over the plain, we were set down in the midst of nowhere at the end of the road. Entering an antiquated chariot, we rattled toward the edge of the *alto*, as the height above the city is called in La Paz, and having passed the brink of the canyon, while skirting the sides of the cliff in the long curves of a well-graded road, we looked down on the red roofs of the city, a thousand feet below.

My leading guide, Maquignaz, who on his previous visit to the

country had had some unpleasant experiences with the Indians, insisted that we must have soldiers to protect us on our expedition. The government officials, however, courteously informed me that the country was perfectly safe, the Indians harmless, and that there was therefore no occasion for soldiers; so I finally prevailed upon the guides to venture forth without escort, on condition that they be provided with rifles and revolvers, of which the former were kindly loaned by the government.

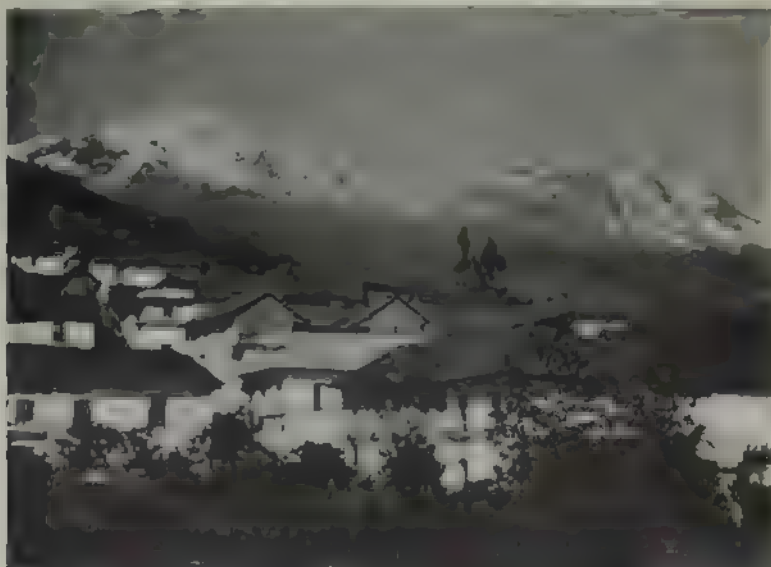
On the 31st of July, in the midst of my preparations for our departure to the mountains, still eighty or ninety miles distant, according to the route travelled, I was first informed by the scientist of our party that he intended to leave for home, as his duties there demanded, on the 20th of August, less than one month from the time of our arrival in Bolivia. It had been my intention, if the condition of the mountain were unfavorable or if one side proved impracticable, to make a second or a third attempt. Moreover M. had declared the presence of a third man on the ice to be absolutely essential. To have the scientist's help for so short a time only was a terrible and unexpected blow. With anxious forebodings I hastened my preparations for departure.

Having engaged an *arriero* to provide and look after the mules, added canned meats, sugar, chocolate, etc. to our stock of provisions brought from New York, and attended to many other matters, at half past ten on the morning of the 3d of August we clatter out of the hotel court, or *patio*. Our party now includes Subteniente Epifanio L. Llano, who, having been instructed by me in the use of the instruments, is to take observations at Acha Cache at the base of the mountain, while we are above. As we slowly proceed upwards, we cast occasional backward glances at the noble form of Mt. Illimani, which towers grandly above the city. At length emerging upon the great *puna*, as the table land is called, we leave behind almost all traces not only of civilization, but of life, save that which we meet upon the road. Not a village nor even a hut do we pass for hours. The brown treeless plain shows few signs of cultivation; we cross several dry river beds thickly covered with stones. To the right is a splendid range of snow-clad mountains; to the left are distant hills of graceful outline. We meet



TAMBO AT COCUTA ON THE WAY TO SORATA

From a photograph by Annie S. Peck



MT. SORATA FROM TOWN OF SORATA

From a photograph by Annie S. Peck.

many people, mostly Indians, and even more animals: burros, sheep, hogs, and cattle. Especially numerous and interesting are the troops of graceful llamas, distinctively the burden-bearers of this region, which I never tire of watching.

At Cocuta, a *tambo*, or inn, five leagues from La Paz, our *arriero* insisted upon halting for the night, as the next place was five hours farther. In the adobe structure at the left was a guest-room furnished with four cane-seat chairs, a table, a broad bench or bed, which looks like stone but is merely adobe or dried clay, and narrower benches of the same material. Our dinner, served in courses, was better than might have been expected: a palatable soup with noodles, beefsteak with a fried egg placed on top, lastly a cup of tea; bread we had also. On such expeditions fastidiousness has no place, and all ate heartily. Later I strolled outside the enclosure in the cold still moonlight to look at the great white mountain, Huana Potosi, and over the dark broad plain. Here one must needs feel small and insignificant, realizing the word "awe" as never in crowded city.

On the morrow the immense snow-covered mountain Sorata or Illampu appears before us. As we approach the lake the land becomes more fertile, and in consequence is more thickly settled. To Guarina is eleven hours on mule-back; too much for an already tired mortal, who has not enjoyed this form of exercise for six years. Acha Cache, a big Indian town by the lake, we reach the following noon, there installing our army officer with a portion of the instruments. Thence we proceed by a delightful day's journey over a great ridge of Illampu to the town of Sorata, to investigate a suggested route on the northeast side of the mountains. But here it appears that there is not time for the Professor to make a second attempt should the first one fail, and my chief guide now declares that if we will first try the route from Umapusa, with which he is familiar, he will "guarantee" that we reach the summit.

To Umapusa then we went, — a *finca*, or large estate, on the southwest side of the mountain, — where we arrived about dusk. After a good supper from our own stores, we were just getting settled for the night, when M., for some unaccountable reason, became alarmed. Having been attacked (with stones) by the Indians five years before, he was doubtless more timid than he

would have been otherwise ; it seemed unnecessarily so. He now believed the Indians about to attack us, and bringing out rifle, revolver, and even his ice axe, stationed himself by the door. Though believing his fears groundless, the Professor to pacify him offered to divide the night into three watches, he and the two guides each taking one. Meanwhile, in order that I might sleep, I requested that the light be blown out (a measure also conducive to safety, supposing the danger to be real), and I fell asleep while the others were still discussing what arrangements should be made. How long they kept guard I never knew, for when daylight came the foolish fears of the night before were shamefacedly ignored.

From Umapusa, accompanied by eight Indian porters, who were to carry our baggage up the lower cliffs of the mountains, we rode along the ridge past two Indian villages. In one of these, M., who was ahead, turned back to me in alarm, saying that some Indians had assembled and were picking up stones to throw at us. Sure enough, there were a dozen of them farther on, close to our pathway. "But," I said, "we can not turn back for that," so we went on, up the narrow lane to meet our fate, if need be. Drawing nearer we perceived half a dozen Indians sorting potatoes, while others stood by watching, and none gave the slightest heed as we passed by ! After surmounting this long ridge and descending a little on the farther side, we skirted other shorter buttresses on our left, while below at the right lay a pretty green lake, far from the haunts of men. Presently we turned to the left up a narrow valley hemmed in by steep rock walls, at its head a level floor an eighth of a mile in width, where at about five o'clock we encamped. The Indians flitted about and climbed the rocks as if they enjoyed it, but at length came down and occupied the larger tent, laughing and singing as if in the happiest of moods.

It was a clear, still night, and we hoped for the best on the morrow. According to our excellent aneroid, we were at an elevation of 15,350 feet, higher than the top of any mountain in Europe, except Mont Blanc. In the morning I was up betimes, hoping to surmount in good season the 3,000 feet (so M. called it) of rocks to the glacier. But alas ! the Professor was ill and did not arise. Having slept outside the tent to guard the

baggage, in spite of his particularly warm sleeping bag he had suffered from cold during the night, also from indigestion ; so the guides and I prepared breakfast, took down tents and arranged the packs for the Indians. When at length the Professor arose, being still cold, he strolled off down the valley to seek a sunny spot to get warm. After his departure the Indians, who had hitherto wandered aimlessly about, approached my guide and declared that they would not ascend the mountain on account of the depth of the snow. In this emergency he seemed perfectly helpless, merely reporting their words to me. The Indians were now collecting their things to go down. The boy and our own Indian were preparing to leave with the mules. Were we to be deserted here? My command of Spanish was small, that of the Indians equally so ; but I made an effort, with signs and gestures insisting that they should go up, finally offering them double what I had agreed to pay ; but all in vain. I looked for the Professor to aid, but he seemed beyond call. Doubtless the Indians thought that he had already deserted, — it is a habit of their own, — and that I could do nothing anyway ; so they slipped away homeward, leaving us alone.

I turned to the guides and proposed that we carry the things up ourselves. “Impossible,” said M. most emphatically. The Professor, seeing the retreating Indians below, returned, and also asked M. if we could not get up by ourselves. “Impossible!” again said M. “That settles it!” said the Professor, and now indeed my heart sank. Three men against me, one of whom had been ill all night and not eaten a morsel of breakfast! Could I ask him to carry up the loads? Could I overrule M., who knew the way and pronounced it impossible, simply reiterating “I told you we must have soldiers”? Never before had I felt so helpless. To manage three men seemed beyond my powers. Perhaps some of my more experienced married sisters would have done better.

The mules were about to start down. There was no time to hesitate, only to pack up and go with them. Rage and mortification filled my soul. With the goal so near, to be turned back, though but temporarily, for the lack of Indian porters for one day’s journey! With plenty of time, surely three men might carry the burdens of eleven ; but our time (for the Professor)

was short. To descend the mountain and make the weary journey back to La Paz, to find there some one to take the Professor's place; to procure if possible the soldiers that M. now more stoutly than ever declared to be necessary, — such seemed the only course open. We arrived one evening, happily a little after dark, since I at least was full of mortification over our ignominious defeat.

On our arrival in La Paz a new complication presented itself. The port of Mollendo was closed on account of the bubonic plague. Immediately the guides were filled with alarm, lest they should be shut in for the whole winter. Now they could go out by the way of Autofagasta, a longer and much more expensive route by which the Professor was going, and they insisted on accompanying him. In vain did I assure them that it was impossible that all the ports should be closed; so finally on the 20th of August all three departed, and I began making plans on my own account for another attempt on the mountain.

Meanwhile my second request for soldiers from the Government had proved as futile as the first. However, Señor Juan Maria Zalles, owner of a *finca* which includes the side and summit of the mountain, cordially offered to assist me with Indian porters and a *cholo* (or half-breed), competent, as he thought, to conduct me to the top of the mountain. The idea of going off alone to spend two weeks among cholos and Indians was at first rather startling; but being assured by foreigners and Bolivians alike that I should be perfectly safe, so far as the natives were concerned, my courage gradually rose, until I became quite enthusiastic over the prospect. The weather was the only drawback. Already there had been a snow-storm, and my prospective guide asserted that it would be two weeks before the cliffs would be sufficiently free from snow for the Indian porters to go up. I declared that I should set out from La Paz the following Wednesday, believing that the mountain would be in condition sooner. "Well," he rejoined, "if the lady says it will be all right, of course it will be, but I don't think so." Before Wednesday came, there was another and heavier snow-storm. Again I waited, again the clouds gathered, and it snowed for several days. Avalanches were continually falling, and mountain climbing was out of the question. It was the 18th of

September, and there was no hope of better conditions. This year, as Señor Ballivián, chief of the Bolivian Geographical Bureau informed me, there had been no real cessation in the rainy season, which usually closes in May. Such weather had never before been experienced. We had been at the foot of the mountain at the most favorable moment. Then the success might easily have been ours which later weather conditions rendered impossible.

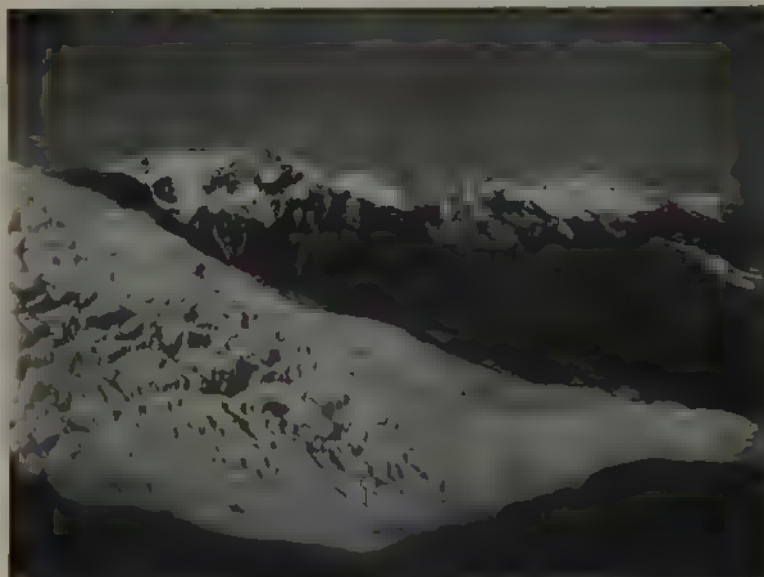
Reluctantly I departed from Bolivia, leaving the giant Sorata still unconquered. Although some valuable scientific investigations had been made, to return to New York without having set foot upon the mountain was sufficiently mortifying to make me seriously ill; but as soon as might be, I rallied my drooping spirits and began cogitating upon the possibility of making that long journey once again and a genuine attack upon this tremendous mountain. With heartfelt gratitude to a few citizens of my native state, Rhode Island, who made a second expedition possible, I set forth again, June 21, 1904, — alone, yet with good hope that I might accomplish more than the year previous. I could not do less.

Even before reaching La Paz I learned with profound satisfaction that the weather was much better than in 1903, — clear and cold; so the mountain was sure to be in excellent condition. The securing of an assistant was a matter of the first importance. An Austrian, Mr. Victor Sintich, was the only discoverable man in the place who had done any snow climbing, and him I engaged to accompany me. Subsequent events proved him to be a fairly capable guide for an amateur with limited experience, and skilful in managing the Indians. A few articles were added to our equipment; *steigeisen* (climbing irons such as are used in Tyrol), additional ice-axes, mittens of vicuña wool for moderate temperatures, and of vicuña fur for the coldest weather; three bags of coca leaves, an invaluable stimulant which we used as well as the natives, and four quarts of alcohol, one for lighting the fire in our kerosene stove, the other three for the benefit of the Indians, who with a small draught night and morning may be kept in good humor.

On Monday, August 8, we set out for Mr. Zalles' *finca*, Chiarhuyo, — not so imposing a cavalcade as the year preced-

my, and continued to accomplish more. Reaching Umapasa at
 And on the same day, I am now settled on the same adobe
 but in fact, with the excitement then enjoyed over M's
 expected return of the Indians which failed to materialize. At
 Chimbrey, we have above Umapasa, we spend Wednesday, while
 Indian people are being collected and additional supplies
 brought from Acha Cacha. The major domo, Garcilaso, is
 civil and obliging. On Thursday we follow up a long hollow
 to the top of the great ridge; thence passing down towards the
 little green lake, we round the end of a bluff into the narrow
 valley, memorable for the wretched snow of the year previous.
 To the upper end of the valley we proceed, and still higher to a
 short above, more sheltered, and better covered with grass, —
 an ideal camping place. Carollano, who had formerly been with
 Conway, declares this to be the site of his first camp. Already
 higher than I had been before, I count this a favorable omen.

Although two thousand feet above the finca, where the pre-
 vailing night at an altitude of 13,400 feet, it was -2° F., we
 pass a comfortable night, with the temperature scarcely freezing.
 An early start in the morning seems impossible. First we
 have to wait, then the Indians make a soup, a lengthy operation.
 Leaving our tent behind for the carriers and Indians, about ten
 o'clock with the porters and baggage we start up the terminal
 mountain of a glacier which comes down in the corner of the
 valley. Above 13,400 feet one does not travel so rapidly as
 below. The Indians halt frequently, but, in spite of their bur-
 dens they can go faster than I with nothing. Unfortunately it
 is there now when I have done any climbing: nor have I had
 practice at my hand. Yet with no long halt we push on to the
 glacier head, then up the mountain on the right almost to the
 crest of a rock cliff which separates this glacier from a larger
 one to the east. At the foot of the cliff I propose to pitch the
 tent but it is obvious there is no room enough and the idea is
 immediately abandoned. It is the foot of the Indians' basket
 then to the house camp, one of many consecutive spirit remains
 with this: that we reach the top of the mountain. After supper we
 go to the top of the mountain, and find in a row, our heads against
 the rock with our feet on the mountain of snow above
 with the tent on the mountain and passing that is this the mountain



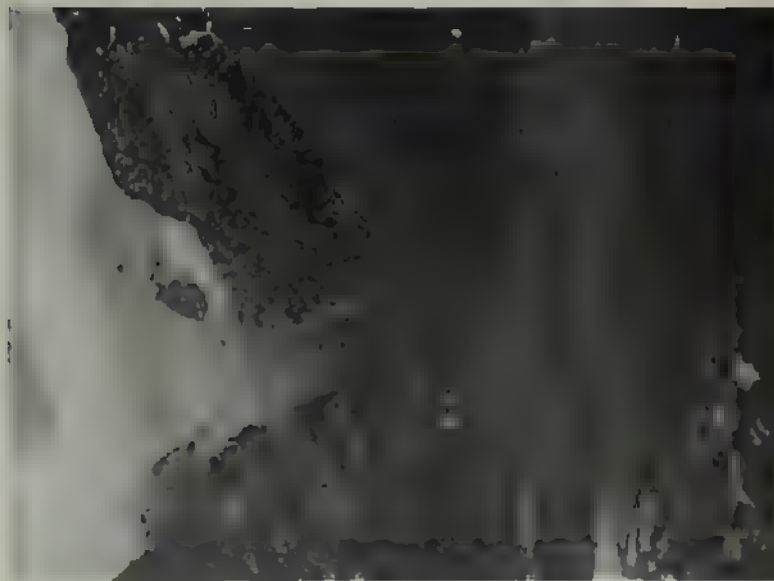
CREVASSED GLACIER ON RIGHT OF ASCENT

From a photograph by V. Sintch.

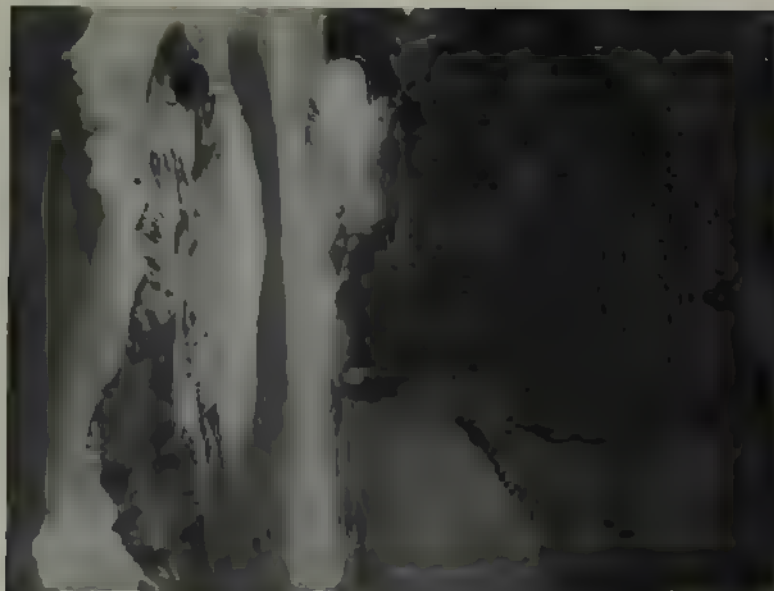


PARTY AT FIRST CAMP

From a photograph by V. Sintch.



TERMINAL MORaine OF GLACIER
ROUTE FROM FIRST TO SECOND CAMP
From a photograph by Anna S. Peck.



VIEW FROM SECOND CAMP TOWARD SUMMIT,
THIRD CAMP SITE ABOVE LARGE ROCK AT RIGHT.
From a photograph by V. Sirtich.

there is no danger. Having taken pulse records and temperature we are soon sound asleep. The season, however, proves to be not so dry. In the night I am awakened: Snow! That is bad for our climb and bad for the others here. I am "as snug as a bug in a rug," as my bag has a long canvas flap which I had pulled over my face with no fear of lacking fresh air. The others are less fortunate. It continues to snow after day-break. Perhaps six inches fall. When the sun comes out I meekly inquire of S. what course he would advise that we pursue. "Go back to the *finca*," he replies. "No," I respond, "we can at least wait a day and see what comes; if good weather, though fresh snow is bad, we can risk going on to-morrow." To this he assents, and later in the day we make a short tour on the glacier, partly to give Garcilaso practice in the use of the rope. Then, after all, room is found to pitch the tent here.

Next day we move camp to a spot above a large rock, about a thousand feet higher, our route now diverging from Conway's. Instead of taking the much crevassed glacier to the right, we follow the one above; the next day, after rounding the distant ridge, we proceed in the direction of the summit. It is easy glacier work, a gradual slope with crevasses well covered; and in spite of frequent halts, by one o'clock we reach the big rock. As it is early, I urge merely taking a rest here and then proceeding farther. Our camp should be at the highest point possible. But S. declares that the weary Indians will go no farther, and that we can reach the top from here if at all. To me this is by no means certain, but it is useless to say more. It did not look very far from the summit, but who could say what difficulties might be met! Our tent is now pitched on this immense glacier, in the most level spot that we can find, which chances to be within twenty feet of a yawning crevasse. On this side the ridges and hollows of this great mountain massif are almost wholly covered with a snowy mantle down to 17,000 feet, in places somewhat lower. Though beneath a tropical sun, we seem to be in the regions of the Pole. The brown plain beneath is hardly to be noticed below the bristling range of rock and ice stretching far away to the south, the ridgepole of the New World's roof, on either side of which the melting snows should go to either ocean; but, strange to say,

from both they seek the far distant Atlantic by way of the lengthy Amazon, unless perchance the few streamlets which flow into Lake Titicaca later find their way by an underground route to the Pacific, as certain recently observed phenomena seem to indicate.

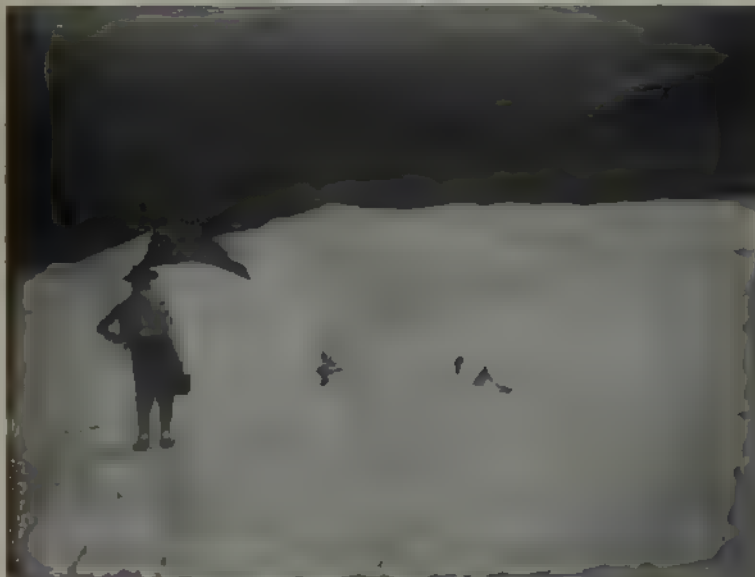
The afternoon gave opportunity for examining the instruments, boiling the thermometers, etc. The aneroids indicated an altitude of about 18,100 feet. The reading of the hypsometer was 82°.5 centigrade. Unfortunately my mercurial barometer had been broken the second day out. My pulse record had been gradually rising from 60 on shipboard to 88 in La Paz, and 120 here. My temperature, in La Paz a degree below normal, was now a degree above. By six o'clock we were settled for the night. Being nearest the door I had fresh air, yet still I wooed Morpheus in vain. Three sets of woolen underwear, tights, four pairs of woolen stockings, vicuña fur socks, Eskimo hare boots, sweaters, flannel waist, Eskimo coat and knickerbockers, besides a sleeping bag, might seem sufficient protection even for a cold mortal like myself, though our minimum thermometer testified to a temperature of twenty degrees below zero, Fahrenheit. Though for the greater part comfortable, I twisted and turned, but no sleep came. Doubtless the altitude had something to do with it, though sleeplessness and higher pulse and temperature were my only symptoms of *soroche*.

If I slept at all I did not realize it. I should have been glad to start at any time, and finally attempted to rout out the Indians. Their slowness in getting up, the time necessary to melt a kettle of snow for our tea and to thaw Garcilaso's boots was exasperating. When at last we set out it was well towards eight o'clock. Though the sun had long been shining, it was still so cold that at first the four pairs of stockings failed to keep my feet comfortable. Then it grew rapidly warm, and less clothing would have sufficed. The snow became soft, yet we did not sink in enough to make the way difficult or dangerous. We rounded one small peak and then another, continually going upward. Considering our elevation, we advanced with a good degree of speed, though with frequent halts for breath. At length, along the side of a ridge at our left with a glacier far below at our right, we were approaching another



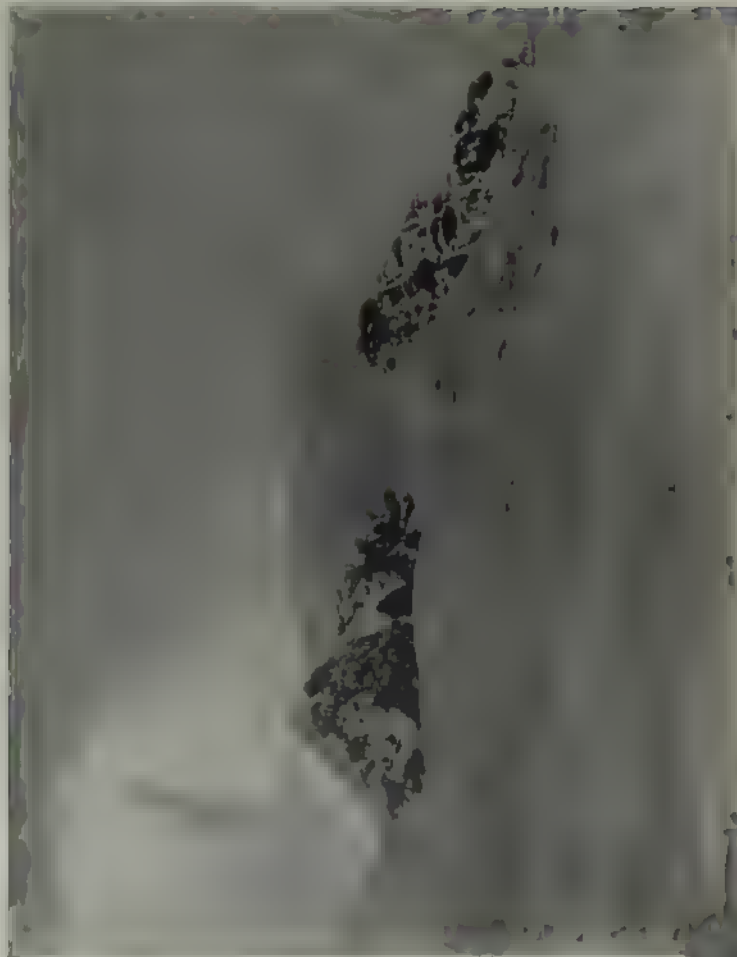
TOWARDS SUMMIT, TWO HOURS ABOVE HIGHEST CAMP.

From a photograph by Annie S. Peck.



LOOKING DOWN UPON HIGHEST CAMP.

From a photograph by V. Smith.



THE SUMMIT RIDGE OF SORATA
THE X MARKS APPROXIMATELY THE HIGHEST POINT REACHED
From a photograph by Annie S. Peck.

ridge, or arête, at right angles and close to the main range. On the other side of this arête lay the glacier up which, as I suppose, Conway had proceeded, evidently far below our present position. It was necessary to ascend this arête and then circle round to the left to the foot of the final peak. The arête was practicable in but two points, one straight ahead, the other to the right, — farther from the summit but less steep. S. at one end of our long rope (eighty feet) was leading, Garcilaso came next, as better able to support him S. in case of a slip or fall, while I brought up the rear. I was sorry to see S. turn off to the right. In making a traverse in the heat of the day across this extremely steep slope, there was great danger of starting an avalanche. However, I followed without a word. It went well for a while, but presently S. came to deeper soft snow and after some floundering gave up, sending Garcilaso, who was lighter, ahead in his place. With difficulty the latter succeeded in reaching the edge of the arête, and peeped over. What he saw was evidently not to his liking. He declared it impossible to go farther. It was now high time for luncheon. When this had been disposed of and I was ready to proceed, S., to my great astonishment, asserted that we must return. Clouds had come up which he said threatened snow: it was so late (two o'clock) that if we continued to the summit we should not get back before dark, and he did not intend to risk his life. I urged that we should try at least to reach the top of this arête, whence we could see all the way to the summit and learn whether this route was practicable. Even this he declared impossible, and declined to go on. I insisted upon going anyway, and started back across the slope, but higher up, — hardly fifty feet below the edge of the arête.

For some distance along the top of the ridge, where the snow had slipped away, the ice was entirely bare and almost perpendicular; farther on there was a good-sized crevasse above, then a snow slope all the way up which I planned to go; beyond, the crevasse again appeared, but narrower. As I was carefully advancing, at every step thrusting the head of my ice-axe strongly into the snow above, I heard a little swish, and then a shout from the others calling me to return. I recognized the sound: it was alarming, a little slip of snow, and they apprehended

more. There was indeed a possibility of starting an avalanche which might carry me down a thousand feet below. In that case, unless my toboggan ride ended in the depths of some crevasse, there would still be a chance of getting out alive. Furthermore, I had observed that the sun had just passed to the other side of the ridge, and this slope was consequently in the shade. Every minute, therefore, the danger was diminishing; so, without looking back, I went on.

Turning at the right point, I advanced upwards with difficulty. The angle was at least 55° , probably 60° . In this ice slope covered with a few inches of snow, my axe now failed of firm hold; but with my *steigeisen* I felt comparatively safe. Testing the snow before me with my axe used as an alpenstock, it went down through into nothingness. I now saw that I was in a line with the openings of the crevasse on either side. Looking down I perceived a crack in the snow just at my toes. I had known that here must be a snow bridge; evidently the bridge was not solid.

How I wished now for the Swiss guide I had on the Jungfrau, who led me across many a yawning gulf and cut steps for three hours up the last arête! Yet as my footing seemed solid, I did not at once desist from my efforts. If I could get a firm hold with my ice-axe above, I might venture to try to step across. But the axe was dull and my muscle unequal to the task. Turning, then, for the first time to ask aid from the *cholo*, who when I set out had been attached to the other end of the rope, I saw, to my horror and disgust, the rope trailing idly on the snow, the two men where I had left them. On a steep and dangerous slope, on the very brink of a crevasse into which a careless step would have plunged me, and no one on the rope! A little less caution and I should be in the bottom of that crevasse now.

There was no question of going farther. Even a Swiss guide would not proceed alone in such a place. With still greater care I went back to the others, and all descended to the tent, which we reached about five.

Now came discussion as to the morrow. I was far from satisfied with the day's work. None of us had been ill, and it was evident that we could go much higher without suffering more

than discomfort. I had seen no reason for the retreat. Indeed S. *now* stated that he could have reached the top of the arête, had he felt inclined; but he knew that, once there, I would persist in going farther. True, I had been planning to continue if the way beyond seemed practicable. That was what I had come for. I did not believe that the clouds would bring storm, and they did not. It looked as if we might reach the summit in two hours, but I should have persisted for three, that is, until five o'clock, for if we descended the final peak by sunset, we could return over the snow by moonlight. Indeed the moon, almost at its first quarter, in that clear atmosphere gave a more agreeable light on the glaring snow than the sun by day. If worst came to worst, compelled by exhaustion or bad weather, we could make a cave in the snow in which to stay till morning. One must be prepared to take a little chance, when undertaking the conquest of a great mountain.

Now I proposed that the next day the Indians carry tent and baggage two hours higher; the day after we could surely reach the summit. If the Indians refused to go on, we might rest one day where we were. Setting out two hours earlier and losing no time on the arête, we might seasonably gain the top. At first S. objected to staying himself; then declared that the Indians would not stay; however, he would tell them what I said. He thought we had done very well, far better than he expected, as he had had no faith in my powers of endurance. He believed that we had surpassed Conway's record and that I ought to be content. He presently announced that neither the Indians nor Garcilaso would remain longer, and that if I wanted another try I must go back to La Paz and take a fresh start! To La Paz indeed, and we so near the goal!

After another night with little sleep, we broke camp, descended to the cliff for our second breakfast and down the moraine to our first camp, arriving at half-past four. Then after a hasty meal I took my first ride without saddle or bridle on a small horse of Garcilaso's to the *finca*. Forty-five miles on mule-back on the morrow and thirty the day following brought us once more to La Paz.

Later I begged S. to make a second attempt on the mountain, which he was disposed to do, had not other business demanded

Nîmes-Clermont line, and stopped about three in the morning at La Bastide de St. Laurent, the station on the very crest, where the railway changes grade from its steep climb up the southern slope to the gentle northward descent by the valley of the Allier. We had a few hours' sleep in the little inn near the station, and then set out for a walk. The chief object of the excursion was to get a better sight of certain features which I had imperfectly seen on a very cold day in February, six years before.

By curious chance, our road was the very one which Stevenson had followed from La Bastide; but at a mile or so from the village he turned off to the north, where a white statue of the Virgin stands at the corner of a plantation of trees, and went to a Trappist monastery; so he lost a sight of one of the most charming villages, St. Laurent les Bains, whose simple beauties merit the immortality that his pen would have given them.

About three miles east of La Bastide, the main road reaches its highest point; there, looking back, one has a fine view into the rolling hilly country of the highland on the west, and looking forward one can see the deep-cut valleys of the Cévennes to the southeast. It was particularly this contrast of forms that I had wished to examine, for it had appeared manifest from the maps of the district that the retrogressive or headward erosion of the steep southeastward streams — of which the Borne is here the chief one — must result in the capture of drainage area from the northwestward streams of more gentle descent. There can be no doubt that such is the case. Not only to-day, but for a long time in the past, the southeastward streams have been pushing their headwaters farther and farther into the territory of the northwestward streams. There can be little question that the rolling highland once extended southeast of its present border, and that its remnants are even now to be recognized in certain rather even-topped hills that rise, more or less isolated, between the deep valleys of the branches of the Borne. The carving that the highland is thus suffering is in reality a re-carving; for the highland itself is one of those worn-down old mountain districts which stood, in a former cycle of erosion, much lower than it does now, and which in virtue of its broad elevation is again attacked by its streams. The old mountains in this neighborhood were hardly worn down low and smooth

enough in the former cycle of erosion to merit the name of peneplain; they were reduced only to a rolling hilly country hereabouts, although farther northwest there are many areas where they were worn down to a good peneplain of small relief: yet the rolling hills of the highland are generally of much less strength than the hills of sharper carving that have been brought forth in the new cycle of erosion, since the reëlevation of the region. Indeed, in a few cases that came within our observation on this one-day's walk, the renewed dissection of the highland was carried to the point of undercutting all traces of the gently modulated highland surface, and of replacing it with ragged pinnacles and serrated ridges in a new generation of mountain forms. I have never seen so fine an example of this kind of transformation; but a similar one, not so pronounced or so distinct, is to be found where the short Atlantic rivers in North Carolina are undercutting the escarpment of the Blue ridge, which ascends rather abruptly to the rolling highland that is drained by longer rivers which flow to the Mississippi.

Quite apart from the physiographic interest of the Cévennes is the untechnical charm of their beautiful landscape and the human interest that is excited by the many marks of the long, hard work that the hill people have had to perform in order to earn a living on the slanting valley sides. Many of the slopes have been laboriously terraced; otherwise the soil would have been too rapidly washed down hill when it was loosened in cultivation. The footpaths go in zigzags, while the wagon roads round the spurs in long slanting contours, nicely adjusted so as to reach a bridge in the valley bottom or a *col* on the ridge top by an evenly maintained grade. At the time of our walk, the colors of early autumn were laid on as if with a broad brush, after the fashion of water-color washes, with many gentle changes of tint. There were dark pines and yellow-green beeches on the higher slopes, especially on the cooler slopes of northern aspect; lower down there were many chestnut trees among the dull gray greens of fields that had done their work, the bright greens of pastures, and the browns of fresh-turned soil. The Borne, as crystal-clear a stream as I have ever seen, had patches of flood plains, neatly laid in narrow scrolls on the up-valley side of its many curves, just as they should be in a well-

ordered valley. A few houses were scattered over the hillsides, but most of the people lived in closely built villages, of which St. Laurent les Bains was the only one through which the road led us. We saw another farther up the valley, nearly hidden among the trees, the very type of out-of-the-wayness.

The three views in Plate XVII. give characteristic illustration of the features thus described. The middle view is taken looking southward down the narrow, deep-cut valley of the Borne, and shows the steep slopes of the hills on either side in the foreground, descending to the stream on the left and to a slender strip of flood plain on the right; while the distance is occupied by one of the even-topped hills isolated from the highland. The upper view was taken looking westward, and exhibits the relatively even skyline of the highland edge, undercut by the valleys of the Borne headwaters: the road that we followed comes over from La Bastide de St. Laurent, at the faint sag in the middle of the skyline, at first hidden by a southward spur of the dissected escarpment, then faintly seen as it slants to the right, rounding a great promontory and retreating into a deep-cut branch valley. The third view is a continuation of the second to the right or northwest. Here the slopes are characteristically ragged, and thus indicate that the present cycle of re-carving has not yet passed the stage of early maturity, while the prevalence of subdued and well graded slopes on the rolling hills of the highlands, where projecting ledges are almost wanting, proves that the earlier cycle of erosion was entering upon old age. The slanting road is seen again in the third view, turning into a side valley, under ragged ledges crowned with a ruined castle on the way to St. Laurent les Bains, here hidden, coming out once more at a lower level, and making a zigzag in a grove of chestnut trees on its way down to a bridge in the valley bottom, just out of sight on the right. This view in particular was crowded with picturesque details of form and color, over which our eyes delighted to rove and linger.

St. Laurent has some hot springs which presumably determined its location in the narrow, steep-pitching side-valley of a branch of the Borne. The main road makes a long détour to take it in on the way down to a bridge over the main stream. We saw the village first over a mile away as we rounded a long

spur which had for some time shut out all our northward view; there were groves of chestnuts growing above and below the cluster of houses, many sloping lines, all leading towards the village from either side, suggestive of the down-hill tendency that everything must experience among these renewed mountains; and many horizontal lines indicative of the work done by the villagers in their efforts to arrest the down-hill movement. The village was then hidden for a time as we turned into another branch valley; and seen again but a quarter of a mile away, as in Plate XVI., when we rounded a second spur. A small church was the highest building; it stood a little higher up the slope than the houses, which follow the road around its turn at the stream crossing. But the most impressive feature to American eyes was the wonderful manner in which the houses seemed to fit in their places, as a sympathetic part of the landscape. Everything expressed an adjustment of man to nature, and gave the idea that the element of time had played a much larger part in shaping things than is usually the case with our villages. It was hard to turn away, to walk slowly back along the long up-hill road, and to know that a midnight train would carry us away. Seldom has any view given me more of a desire to see it again; and if Europe comes once more in my way, not a day but a week will be the very shortest allowance for the hills and valleys of the Cévennes.

With Sierrans and Mazamas — July, 1905.

BY WILLIAM A. BROOKS.

Read November 8, 1905.

FOUR thousand miles is a long distance to travel to climb a mountain, but in response to the invitation of the Sierra Club and the Mazamas to the Appalachian Mountain Club to participate in their annual outings, twenty-seven members of the Boston organization repaired to the rendezvous at Portland, Oregon, the home city of the Mazamas, who, genial and hospitable hosts that they are, received their fellow mountaineers from California and the East with open-armed cordiality.

From a thousand to fifteen hundred miles lay between the eighty-three Sierrans and their California homes ; but they and the Appalachians, with the width of a continent behind them, immediately felt the influence of those amenities that prevail among lovers of the mountains and the wilds, and found that their lines had fallen in pleasant places.

The principal feature of the joint meeting was a camping expedition to Paradise Park on the slopes of Rainier, the second highest mountain in the United States. Already a small advance party had gone on to do the preliminary work of the camp, and attend to packing in the ten thousand pounds of supplies provided for the commissary department. This, with the camp equipage, was transported by wagon and pack train twenty-one miles back into the mountains from the railway, — an undertaking of no mean proportions. For this service every horse in the sparsely settled surrounding country had been secured. Our fresh beef, however, was toted by the cow that originally owned it. After allowing her a few days in which to enjoy the scenery and incidentally get rested, she was despatched to that bourne from which no cows return, a hole was dug in a snow bank, and the beef placed in cold storage.

During the week at our disposal before the departure of the main party, the Mazamas allowed for no idle moments. Sixty miles from Portland is Mount Hood, 11,225 feet in altitude, on whose lofty summit their organization, with its Mexican name of the wild white mountain goats, and its Indian motto, *Nesika Klatawa Sahale* (we go to the top), came into existence on July 19, 1894. It was arranged for two parties to climb this mountain, one from Cloud Cap Inn, on the north side, the other to ascend the southern slopes ; and so, early one morning, a picturesque assemblage, the south side party, gathered at the Hotel Portland, — men with slouch hats and flannel shirts, with trousers thrust into high-laced boots or covered with leggings, and women whose costumes, with the addition of short skirts, were almost identical. Their heavily-gloved hands held steel-pointed alpenstocks, while *rucksacks* and dunnage bags contained their belongings.

“Mount Hood” was the watchword, and soon automobiles came chugging around the corners to convey them thither.

First over the smooth asphalt of city streets, then along country highways, where pink and white canterbury bells swung gently in the breeze, the machines sped swiftly, till a plank road was reached that led into the magnificent Oregon forest, where giant trees — Douglas spruce, Pacific white cedar, and the large-leaf Oregon maple — grew straight and tall, lifting their green canopy two hundred feet and more above the winding path. Then the plank road changed to corduroy, that went up hill and down, through bog holes and over projecting rocks, constantly gaining in altitude.

As we neared our destination, the site of the old Government Camp, where troops were once maintained to protect from the Indians the immigrants who came into the new country over the old Oregon trail, the white blossoms of syringa and mountain ash and the brilliant roseate bloom of rhododendrons filled the woods with masses of color. Here the dunnage was transferred to a pack train of horses, and preparations made for the climb of four miles to the tree limit, where camp was pitched for the night. No tents were taken, but the sleeping-bags were arranged under the firs, with only the star-lit sky overhead. A camp-fire was built and supper eaten. By the light of the blazing logs, the hob-nails in our shoes were reinforced by half-inch calks, while that best time of all the camper's day, the social hour about the fire, was enjoyed. In the dim twilight of early morning a hasty breakfast was eaten, and, soon after four o'clock, the climbers stepped from the rocks to the snow, with faces turned toward the summit, four miles above. Before them stretched the white expanse of the great snow-field, while below the valley was hidden by the fleecy billows of an ocean of clouds, on which was projected the conical shadow of the mountain.

Far ahead, the forbidding black mass of Crater Rock was silhouetted sharply against the white, and after countless upward steps a halt was made there for lunch. From crevices in the volcanic rocks issued curling wisps of steam, accompanied by gases, some sulphurous and nauseating, others odorless. Here one of the party, a professor in a California college, had a most unpleasant experience, and narrowly escaped serious injury. On going to the edge of the glacier, to drink from the stream issuing therefrom, he inhaled the odorless carbon dioxide gas, and

before he could lift himself to his feet was overcome, and fell unconscious to the rocks, ten feet below, from which he rolled still further down. Fortunately, except for a badly bruised face, he was uninjured.

From Crater Rock a narrow ridge of snow, with steep sloping sides, extended straight up the mountain. On this slippery ridgeline, not more than a yard wide, steps were cut, and in single file the climbers carefully picked their way to the upper end, whence a sharp turn was made to the left, and a traverse made across a steep snow slope, that led to a large crevasse. Reaching this, we stood while a ladder that had been taken up, with which to bridge the chasm, was dug from the snow.

While we waited, another California professor was struck on the ankle by a falling stone, and though he pluckily kept on to the top, he nursed a lame and swollen joint for several days thereafter. Why Mount Hood should have singled out scientific men from California as objects of wrath is unexplained; but it certainly seems that insult was added to injury, when it is considered that he who was asphyxiated is a professor of chemistry, while the man at whom the mountain threw the stone with such good aim is a geologist.

After the ladder was put in place, the guide and one other hardy climber ascended the very steep slope above, cutting steps as they went, and carrying a long rope which was finally anchored securely at the top. Then, alpenstock in one hand, the other grasping the rope, each made the ascent. From where the line was fastened a short scramble took us to the summit, where a great cornice of snow crowned the sheer black cliffs of lava and agglomerate rock. Avoiding this, the peak was shortly gained.

Though there were still clouds below us, they had broken away, and we looked out over range after range and peak after peak of mountains, that rose and fell as far as the eye could see, and above them like beacons towered the great snow peaks of the family to which Mount Hood belongs. Far away to the south was Shasta; to the north Rainier; in the nearer distance the symmetrical dome of St. Helens, the massive bulk of Adams, and the Three Sisters, each with its crown of eternal snow. Yet, with the snow peaks eliminated, the view might have been one in our own White Mountains. A cold wind swept across the

bleak summit; and standing there among the snow and ice, one could hardly realize that on that same mountain the rhododendrons were in bloom.

While we were engaged in the interesting task of inscribing names in the Mazama register, two climbers of the north-side party drew themselves up over the crest and joined us; but we did not wait for their companions. Descending by our own trail, we covered the whole eight miles to Government Camp. That night was so cold that morning found the sleeping-bags coated with frost; but we had slept comfortably.

On the return to Portland, the autos formed in procession on the outskirts of the city, and paraded the streets, with tooting horns, back to the hotel, where the *grand finale* came as a surprise to the onlooking crowd, — a pelting with snow-balls, for which Mount Hood furnished the raw material.

Two other features of our sojourn in Portland were an excursion up the Columbia River, and Mazama Day at the Exposition, when the visiting clubs were welcomed at the Auditorium by President Goode of the Fair, and Judge Northrup, president of the Mazamas.

At midnight of July 14, a special train of Pullman cars pulled out of Portland for Tacoma, having on board the Sierra and Appalachian parties. In the morning the cars were switched to the tracks of the Tacoma Eastern R. R., and run seventy miles to Ashford, a lumber camp and the terminus. For the first time since the road was built three years ago, a Pullman went over its rails.

With the freshness of the morning and the breath of the woods in our nostrils, we felt that now we were nearing the "promised land." Outing costumes had already been donned in the cars, so that, after a lunch furnished by the camp commissary at Ashford, we were ready for the fourteen-mile tramp to the first camp, near the group of hot sulphur springs known as "Longmire's."

Again we walked in the shade of huge trees, the way bordered with ferns and mossy banks, where white salal berries and the fruit of the Oregon grape gleamed against the green background. Foaming trout streams, singing a siren song to the angler, tempted one to linger, but in due time the smell of smoke and



ST LAURÉNT LES BAINS

From a photograph by W. M. Davis



THE SKYLINE WEST FROM VALLEY OF THE BORNE
THE VALLEY OF THE BORNE
A BRANCH OF THE VALLEY OF THE BORNE

From photographs by W. M. Davis

the sound of voices apprised the walkers that their destination was at hand.

Supper was ready when we arrived, and there we first made the acquaintance of Charlie Tuck, the Sierra Club's Chinese cook. He was assisted by several other almond-eyed and yellow-skinned exiles from the Celestial Empire.

This being a one-night bivouac, only the commissary tent was pitched. Many fallen logs lay at all angles on the comparatively level ground, and in the spaces so formed sleeping-bags were arranged, each in the "apartment" of its owner's selection. In the centre of a small clearing the camp-fire dispelled within a short radius the gloom of the black forest, while the crackling of the logs mingled with the murmur of conversation.

The sky had become overcast, and a feeling of dampness in the air with an uneasy rustling of foliage presaged rain. Silence crept over the camp; the circle about the fire lessened till only a few remained; finally they, too, disappeared among the trees, and in the sombre forest, apparently deserted, a hundred people slept on the carpet of fallen leaves, while the wind whispered fitfully through the branches overhead. In the night the rain came, — first a gentle patter on the dead leaves, followed by an increasing down-pour; but luckily before breakfast the storm was over.

That portion of the dunnage needed for the first night in the permanent camp was now loaded on the twenty-two horses of the pack train, and we "hit the trail" for Paradise. The picturesque route is through the fine Nesqually Canyon, and is seven miles in length, gaining three thousand feet in altitude in that distance. A foot-path at the best, it follows the course of the Nesqually and Paradise Rivers, passing several fine waterfalls, and giving glimpses of mountain views through the vistas of the trees.

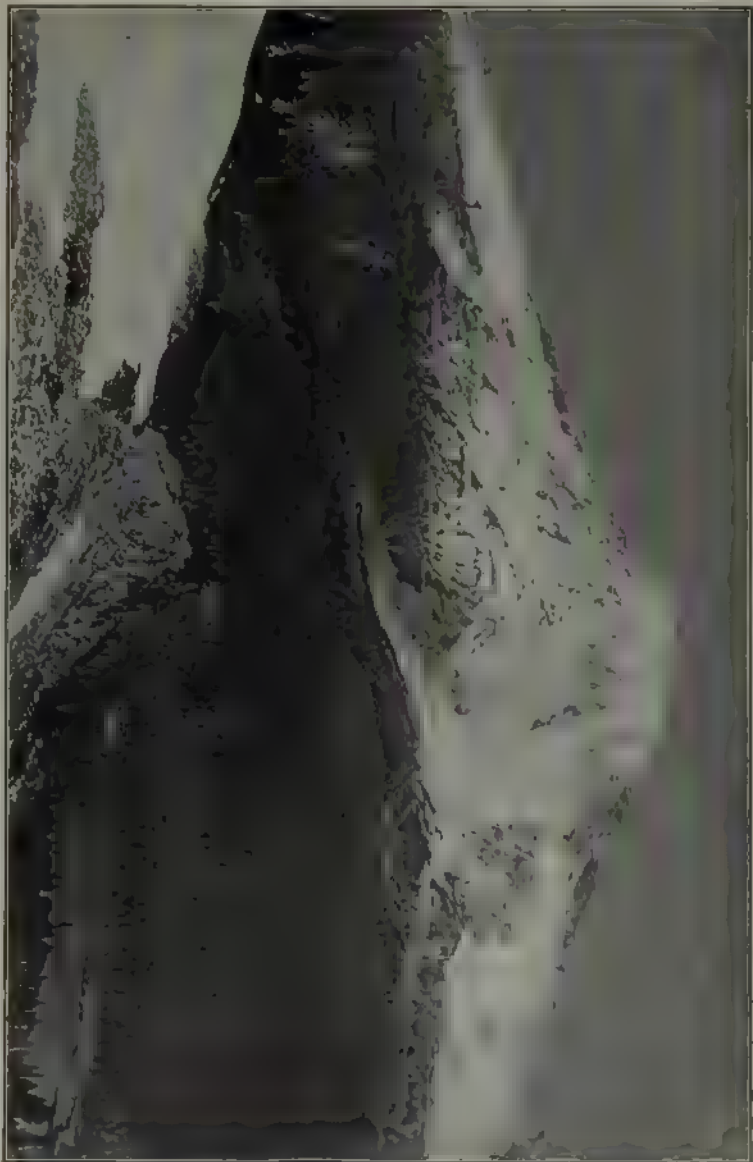
The shade of the woods and the cloudy sky made the long climb very comfortable for most of us; but Charlie Tuck, not so good a pedestrian as he is a cook, did not enjoy it. Every now and again he would exclaim, "Heap hot walk!" and when camp was reached, he heaved a ponderous sigh, wiped his forehead, and remarked fervently, "Heap dam hot!" after which expression of his feelings he set about getting dinner.

As we ascended we left the heavy forest growth, and came out into the open park country, where the vision is limited only by the sky line of the mountains ; but on our arrival at camp the peaks were obscured by dense clouds that hung heavily over them. These conditions were new to the Sierra people, who do not have to take rain into account on their excursions among the California ranges, but the weather was such as New Englanders are accustomed to encounter in the White Mountains.

The large tents for general camp use had been pitched by the advance guard, so there only remained to erect the small sleeping tents, for which each one selected a site according to his own fancy. The gray mist sifted through the trees, and ghostly figures came and went among the tents. The evening was spent in the large assembly tent, drying out the bedding wet from the night before ; and merry groups, whose spirits no stress of weather could dampen, gathered around the conical Sibley stove. All were optimistic for fair weather on the morrow, and in the night, Rainier, as if to make amends for its surly reception of us, emerged from its vapory seclusion to greet us with a cheerful " Good morning."

The sun was well up when the writer, looking through the open front of the tent, saw with dazzled eyes, looming directly before his camp, mighty Rainier, with its pearly whiteness outlined against the deep blue of the sky. Remnants of clouds that shifted in the varying air currents still partially veiled it, opening and shutting, to discover or conceal, as the case might be, the noble peak, as if we might not gaze upon it all at once.

Paradise Park lies at the limit of the tree-line, at an altitude of 5500 feet. It is a region of wonderful charm and irresistible attraction to the lover of nature : a strange, incongruous country of wild grandeur and delicate beauty, where winter and summer walk hand in hand. There one may stand in the shade of picturesque groves, sheltered from the noonday sun, and look out upon an Arctic landscape of glaciers and snowfields, of cliffs and chasms, of blue ice that never melts away. Or, reversing the picture, while the climber cautiously picks his way among the séracs and crevasses of the glaciers, or across snow miles in extent and of unknown depth, he sees within the limit of his vision the trees, the grass and the flowers of summer.



MT. RAINIER FROM THE SLOPE OF PINNACLE MT.
PARADISE PARK IN MIDDLE GROUND
From a photograph by H. W. Gleason.

The camp was situated in a pleasant valley between the canyon of the Nesqually Glacier and the gorge of the Paradise River, near the line of demarcation between the vegetation and the eternal snow and ice. Scattered here and there were clumps and groves of those hardy mountaineers of the botanical world, the sub-alpine firs and spruces, the only trees that grow at that altitude.

The greensward was ablaze with myriads of wild flowers of every hue; thousands of them forming a kaleidoscopic display of varied color. There were countless numbers of beautiful white mountain lilies (*Erythronium montanum*), the flaming crimson pompons of the painted cup (*Castilleja*), the bright orange of *Potentilla flabellifolia*, the blue of *Veronica alpina* and lupine, the white heads of *Valerian Sitchensis*, and the showy involucres of the *Anemone occidentalis*. On the hillsides were patches of pink heather (*Phyllodoce empetrifolia*), and the white heather (*Cassiope Mertensiana*), and there also stood the showy white plumes of the elk grass. The white-flowered azalea (*Rhododendron albiflorum*), and the pink *Spirea densiflora* bloomed in the woods. Along the streams were the handsome purplish-red flowers of the *Mimulus Lewisii*, first collected by Lewis and Clark, and named for Captain Lewis. On the high slopes, blue and yellow violets and phlox were blossoming, and at higher altitudes still were many rare alpine plants.

This meagre description of the wealth of color in the landscape gives but a hint of the varieties that, to the number of more than four hundred, make this mountain park a Paradise for the botanist. For the ornithologist there was much interesting bird life to observe and study.

Waterfalls, from the tiny cascades to those having the dimensions of a cataract like the beautiful Sluiskin Fall, were tumbling over the cliffs; and each little gully, like the great canyons, had its own watercourse. The twitter of birds and the purling of water mingled with the dull roar of avalanches and the crash of falling rocks on the mountain. Far above all this beauty the grand mountain, Rainier, lifts its huge bulk of everlasting snow in magnificent outlines to a height of 14,528 feet above the level of the sea.

Two of its glaciers, the Nesqually and the Paradise, were

near the camp. The former is one of the largest, and presses down below timber line. The walls of the canyon are very steep and precipitous, and at the base, on each side, is the great lateral moraine thrown up by the glacier, which is also divided in the center by a medial moraine. According to measurements made by Professor Le Conte while we were there, the ice was advancing fourteen inches in twenty-four hours. Several parties from the camp explored both glaciers. Great cracks and crevasses form a labyrinth through which it is very difficult to pick a safe pathway. The hat and alpenstock of a Sierra Club member are now at the bottom of a narrow but deep crevasse of the Nesqually glacier, into which he fell through the insecure snow-bridge that covered it. Catching the walls with his elbows, he supported himself till a rope was lowered and passed around his body, when he was pulled out. On the Paradise glacier were cliffs and caverns of most beautiful blue ice, and beyond the great Cowlitz Glacier some fine basaltic cliffs.

All the glacial streams are of a milky color, and this appearance has given its Indian name to the rugged range of mountains that flanks the valley opposite Rainier, "Tatoosh," — the mountains of the milky water. Its principal peak is the Pinnacle, a jagged spire of naked rock 7000 feet in altitude. A feature that impresses itself forcibly on the climber among these volcanic mountains is the extreme steepness of the slopes and the treacherous looseness of the soil and rock.

Many trips were made to the Tatoosh range and the glaciers, and high up on the snow and among the crags of Rainier to the haunts of the wild goats. The animals themselves were seen on several occasions; and where their paths ran through the scrub, their musky odor was very strong. On the tough branches hung tufts of wool that had pulled from their fleeces.

But all of this preliminary climbing was preparatory to the grand event of the expedition, the ascent of Rainier itself to the summit.

Previous to the climb of the official party, Messrs. Glasscock and Dudley, two young men of the Sierra Club, made a daring ascent up the hitherto unclimbed sky-line ridge, west of the Nesqually Glacier. Mr. Sholes of the Mazamas, with two companions, also essayed a new route from "Indian Henry's hunt-

ing ground," but was forced to turn back, as the way was found impracticable. Another party of six Mazamas, which included General Hazard Stevens of Boston, who, in 1870, was the first man to climb Rainier, made the ascent successfully by the usual route *via* Gibraltar Rock.

On the second Monday of our sojourn in Paradise Park, the camp was early astir, and every one on the *qui vive*. The great day had arrived. The climbers, some sixty in number, were divided into companies of ten, each with its own captain. The first day's march was to Camp Muir, named for the famous president of the Sierra Club, among the rocks under the great cliff known as Gibraltar, at an elevation of about 10,000 feet. Sleeping-bags and supplies were sent up on the pack ponies as high as they could travel on the snow field, which was to a point about a mile below Gibraltar. From this point the climbers toted them on their own backs.

Camp Muir was a cheerless place of snow and bare rocks. Slabs of stone were piled up for wind-breaks, and the night spent in a not too comfortable manner. Fortunately two Khotal oil-stoves had been taken, on which hot food was prepared.

At dawn the next morning a hasty breakfast was eaten, and at 4.30 the climbers left Camp Muir for the ascent of the peak. In the ranks were a number of Appalachians, of whom, much to the writer's regret, he was not one. Of the fifteen women enrolled, three were members of our Club.

A steep, rocky ridge, — the Cowlitz Cleaver, — leads up to Gibraltar. Clambering over projecting rocky fragments of the ridge, and across precipitous snow slopes, the dangerous ledge that extends around the face of Gibraltar was reached. A slip on this ledge would have meant a swift and certain death on the rocks hundreds of feet below; and to add to the danger, rocks and stones, loosened by alternate freezing and thawing, were constantly falling. At the end of this ledge came the most perilous part of the entire ascent — for here the way led up a steep chute of snow and ice between the face of the cliff and the edge of the glacier. A fall meant a drop of over a thousand feet. For several hundred feet up the chute steps were cut, and when a halt was finally made for rest on the top of Gibraltar, it was with a feeling of great relief to the climbers. The remainder of

the climb was only plodding to the summit up the snow slopes. Two narrow crevasses were crossed, that widened a few days later to several feet. At 9.30 the crater on the summit was reached, five hours after leaving Camp Muir.

After three hours' tarry here, the descent was made safely, the main camp in Paradise Park being reached at 6.30 P. M.

Climbing a snow-peak in the summer is quite different from the snow-shoe ascents that the Appalachians make during the winter in the White Mountains. The snow, though hard in the morning after the cold night, softens under the sun's rays in the middle of the day, so that an early start is necessary, while the footing is hard and firm. The glare of the sun on the snow is so intense that sunburn and snow-blindness must be considered and prevented. Goggles of smoked glass save the eyes from the latter, while for protection from the former, faces are smeared with a mixture of charcoal and cold cream, or with grease paint such as is used for stage make-ups. Strips of surgeon's plaster are also used to protect the lips from cracking and the nose from burning. To see a company of climbers setting out for a snow ascent, clad in their mountain costumes, and with faces painted in black, white, or shades of pink and red, causes one to think that he has inadvertently joined the chorus of an opera comique, or fallen in with a band of savages on the war-path. But the man of most ferocious aspect is probably a college professor, while the piratical appearing athlete with black cheeks and a bright red forehead may be an erstwhile dignified clergyman, lawyer, or physician.

The evenings about the great camp-fire were given over to song and jest, good fellowship and the interchange of experiences. One night the Sierrans and Appalachians, clad in fantastic costumes, made up from their camping outfits, marched down to the Mazama camp, an eighth of a mile below. Borne at the head of the procession was a goat's head, fashioned from the distorted root of a tree, and labelled "The Original Mazama." Great hilarity prevailed, and songs, college yells, and ten-minute speeches by members of the three clubs went far to cement a union that it is hoped will prove in the future to be a powerful factor in the furtherance of American mountaineering, and a love of the mountains and the woods by others who may follow.

Two evenings later the Mazamas, dressed as a tribe of Indians, with faces painted and camping-blankets of different colors about their shoulders, came up to our camp to return the visit. On another occasion the Appalachians furnished the programme. The memory of the scenes about these camp-fires will never be effaced from the thoughts of those who saw and listened, for the words uttered and the sentiments expressed by the speakers were in strong contradistinction to their appearance.

The scene and the setting were both dramatic. The people were seated in a great circle around the roaring camp-fire, from which a fountain of sparks soared upward toward the million stars that twinkled above with all the brilliancy of a winter night. Behind the tents was the dark background of pointed firs, with the grim mountain towering in ghostly whiteness over all. When bedtime came small fires would begin to glimmer in front of the tents scattered over the green hillsides, and soon afterwards, except for the quiet grazing of the horses, the camp was at rest.

Darkness did not come till nine o'clock, and the most enchanting hour of the day was that of the twilight, when, the sun having sunk behind the mountains, the ranges faded away in ever receding waves, till they blended and were lost in the mystery of the purple mists that veiled them.

But at last came the day of departure. Tents were struck, and the ponies packed. As we went down the Nesqually Trail, we looked back at the noble mountain we were leaving with mingled feelings of regret and anticipation, for though we turned our faces from Rainier, the mighty Selkirk peaks and entrancing lakes of the Canadian Rockies awaited our coming.

The Continental Divide on the Bow Range.

BY CHARLES E. FAY.

Read at the Annual Meeting of the American Alpine Club, December 28, 1905.

A PRELIMINARY map of the region between the Vermilion and Kicking Horse (Hector) passes in the Canadian Rockies, recently published by the Dominion Topographical Survey, renders timely a brief consideration of the course followed by the

continental watershed over the grand series of peaks generally, though vaguely, known as the Bow range. Though the limits of this range and its outliers have, so far as I know, never been defined, no better ones could probably be selected than the two passes mentioned, the Bow range thus embracing the mountains between these and lying west and south of the line of the railway, and further bounded by Cataract and Misko creeks and the Vermilion and Little Vermilion rivers. These limits include approximately one hundred square miles, and, as regards grandeur and beauty, the region is doubtless unparalleled in the Canadian Alps, and is scarcely to be surpassed anywhere. A list of its peaks include Mounts Victoria, Lefroy, Hungabee, Deltaform and the others of the "Ten Peaks," Biddle, Temple, and Aberdeen, not to mention numerous lesser ones, while at their bases nestle those loveliest of lakes, O'Hara, Louise, Moraine, and McArthur.

In acknowledging a copy of this map received from our fellow-member, Mr. A. O. Wheeler, the topographer in charge of the Dominion Government's work in these regions, I expressed regret that it did not represent the line of the Divide. He kindly responded by sending me a copy with this line drawn in, but stated that it was doubtful whether it would be feasible to introduce it in the draft from which the final map would be printed. This would, no doubt, occasion delay and probably would call for further work on the northern end of the range, where a certain vagueness is manifest.¹

Two other maps exist which show the northwesterly half of this area on a similar scale and in considerable detail: that of Mr. S. E. S. Allen, and the one accompanying Mr. W. D. Wilcox's book entitled "The Rockies of Canada." The former is hardly more than a rough sketch, but is interesting as showing the attempt of an enthusiastic pioneer, lacking in technical knowledge, to locate the impressive peaks among which he was

¹ The map has meantime been issued and presents the line of the Continental Divide. Certain changes in nomenclature also appear upon it for the first time. The summit referred to in this article as "Pope's Peak" is called "Mt. Niblock," the name "Pope's Peak" being transferred to the lofty snow summit on the Divide referred to as "nameless" on page 130 of this article. In the description of Plate XX. it has been thought best to follow the nomenclature used in the article, while recognizing the authoritative character of the change.

the first to explore with some thoroughness; that of Mr. Wilcox, on the other hand, is a neatly executed and apparently quite accurate piece of work, showing much detailed knowledge, especially of the region about Lake Louise and between Mt. Victoria and Hector Pass.

It is concerning the two extremities of the range that there has been the greatest indefiniteness of knowledge. Yet one important intermediate section, that south and southeast of the valley of the Ten Peaks, was until very recently a veritable *terra incognita*, especially as regards the line of the watershed. The ascents of Thompson and Parker, in 1901 and 1903 respectively, contributed little to the question. To determine it was one of the principal objects of my own ascent of "Number 1" in 1904. Mr. Wheeler's topographical work later in the same year led to his occupation, as stations, of several peaks on either side of Prospectors Valley, from which for the first time close-range observations could be had of the whole south and westerly side of this portion of the range. Until 1904 it had remained an open question how many and which of the Ten Peaks were actually on the Divide. Even Mr. Wilcox's map swings it off due south from Peak 6, clearly indicating that he did not suppose any of the preceding ones — from 1 to 5 — to be on the watershed. So, too, the Government map No. 2181 (published in 1901) represents its course as swerving quite away from these.

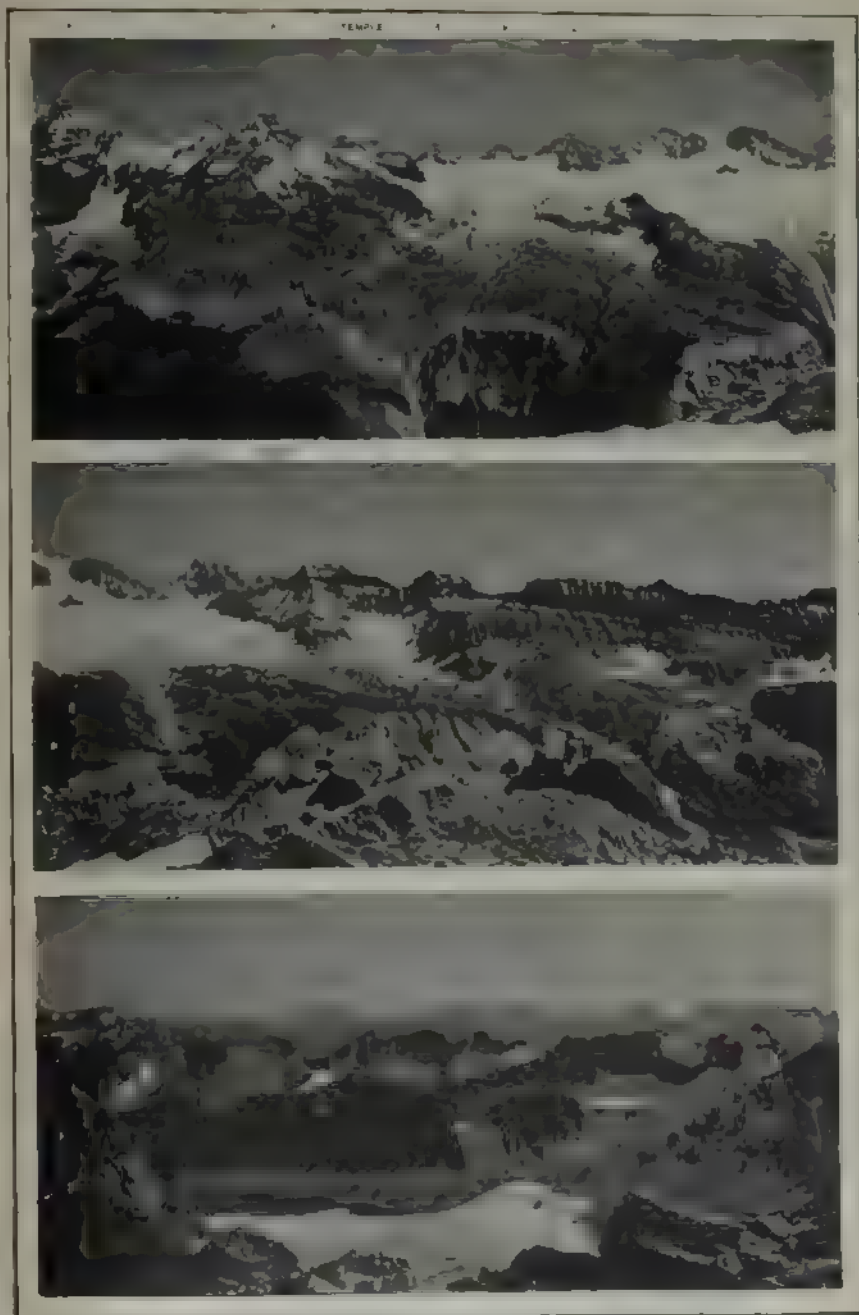
In the ascent just referred to, it was a great satisfaction to solve for myself the mystery of this section of the Continental Divide, crossing it as I did at several points, and being in a position to follow it with my eye for a considerable distance. Briefly, its course on the Ten Peaks is as follows: from Wenckchemna Pass it soars over the beetling crags of Neptuak (9) to the much loftier summit of Deltaform (8). To one looking up from the valley of the Ten Peaks, it forms the skyline for a long distance as it descends from Deltaform to Peak 7, then loops back to 6, to pass consecutively over 5, 4, and 3. On 6, however, it does not attain the summit, but runs over a pointed gable-end somewhat lower. At 3 it turns south almost a right angle, and passes over to 2, from the summit of which it swerves easterly again to descend to the col between 2 and the lowest of the peaks forming the westerly extension of the massif of 1.

The broken skyline of this glacial peak is then followed to its easterly, culminating point, where the watershed again makes a sharp angle and heads for Vermilion Pass. It is at this point that it appears on the "Eldon" sheet (plotted by Mr. J. J. McArthur in 1892) of the series of maps issued by the Topographical Survey of Canada, and its very interesting course almost to that pass is very accurately indicated thereon. Descending over a castle-like buttress of 1 to a deep *col* beyond, it climbs over the southern gable-end of "Mt. Quattuor," — the much indented mountain at the head of Consolation Valley, the crest-line of which and consequently of Bident are not on the watershed — and then swings more to the south by a symmetrically curving *arête*¹ to attain a 10,000-foot nameless peak, turret-shaped as seen from 1. The ridge from this peak forms the lofty castellated partition between the Prospectors Valley and the "Rainy Valley" of Mr. Wilcox. Instead, however, of following it out, the watershed holds to it only as far as the next minor peak, from which it descends a spur to the left, crosses a narrow glacier, and takes to the ridge separating Rainy Valley from that of Boom Lake, making its way by several ups and downs to its lowest point at Vermilion Pass.

Much ignorance prevails, even among the well-informed, as to what portion of the skyline visible from Lake Louise is actually on the Divide. Neither Mt. Whyte nor Pope's Peak has this distinction, and of course the fine escarpment joining them high above Lake Agnes has not. The watershed first appears on the right hand one of the two fine rock peaks that face

¹ It was to the lowest point of this *arête* that Mr. C. S. Thompson climbed with Hans Kaufmann in 1903, after his successful ascent of the peak now known as Mt. Bident. (See *Alpine Journal*, No. 165, August, 1904.) Had more than one of our party, which a year later started out for the first ascent of 1, known of this easy pass to the great snow-field south of that peak, it is more than likely that we should not have returned foiled to our camp, but should have outstripped the party which, starting from camp later than ourselves, actually conquered the peak from the opposite direction on that same day.

In view No. 2 of Plate XIX. the "pass" reached by Thompson is the low point of the *col* between Mts. Quattuor and Bident. The peak to the right with a butte-like summit is the one that is "turret shaped" from Peak 1. The line of the Divide is the sky-line of view No. 2 as far as over the next pointed summit to the right, the one marked with a cross. This latter appears on the extreme right of view No. 3, and in this view one can see the interesting passage by the snow *arête* and across the *névé* to the ridge leading down to Vermilion Pass.



THE RANGE OF THE TEN PEAKS FROM THE SOUTH
SECTION OF SUMMIT RIDGE SOUTHEAST OF MT. QUATTOUR.
THE SAME IN REVERSE FROM MT. B DENT

From photographs by Dominion Topographical Survey

Mt. Lefroy from across the Victoria glacier, marked on Allen's map as Nichols (left) and Despine (right).¹ From the *col* separating the former from the north peak of Mt. Victoria, it ascends this latter along the edge where usually rock is seen bounding on the left the vast curtain of snow, so noticeable from the Chalet at sunset, which sends the water of its melting to Cataract Creek. From this snowy north peak the skyline to the left marks the watershed nearly all the way to where it impinges against Lefroy, the only hiatus being, perhaps, the ridge of snow between the lofty rocky parapet to the left of the long gradual descent from the main summit and the deep sag shortly beyond. A depression filled with névé tributary to the Victoria glacier lies behind it.

The remarkable way in which the watershed, after turning an angle and crossing Abbot Pass, makes straight up the broad side of Lefroy has frequently been mentioned. This was the line of our successful first ascent in 1897, and in plodding laboriously up the steep snow-slope we constantly changed the destinies of fragments of frozen water that seemed foreordained to reach the other ocean. Its course from Mt. Lefroy to Wenckchemna Pass is not devoid of interest, for, again turning at a right angle at the summit, it follows the southern arête of Lefroy over Glacier Dome and over Ringrose — a portion untraversed by human foot — then over recently conquered Hungabee, reaching the *col* after passing the unobtrusive, nay scarcely discoverable tenth peak (is it on the Divide or not?), which gives its name, Wenckchemna, to the pass itself.

The greatest present interest, however, centres in the portion still left to be described, — that between Mt. Despine and Hector Pass. Probably Mr. Wilcox knows more about this section than anybody else, though possibly Mr. McArthur learned its ways when occupying his "Boundary Station" in 1892. The name which he gives to his station, which is not on the Divide, and hence not on the boundary between the two provinces of Alberta and British Columbia, would suggest that he was in error as to which ridge the watershed follows.

There is an interesting photogravure in Mr. Wilcox's book (opposite page 246), taken from Pope's Peak, that shows where

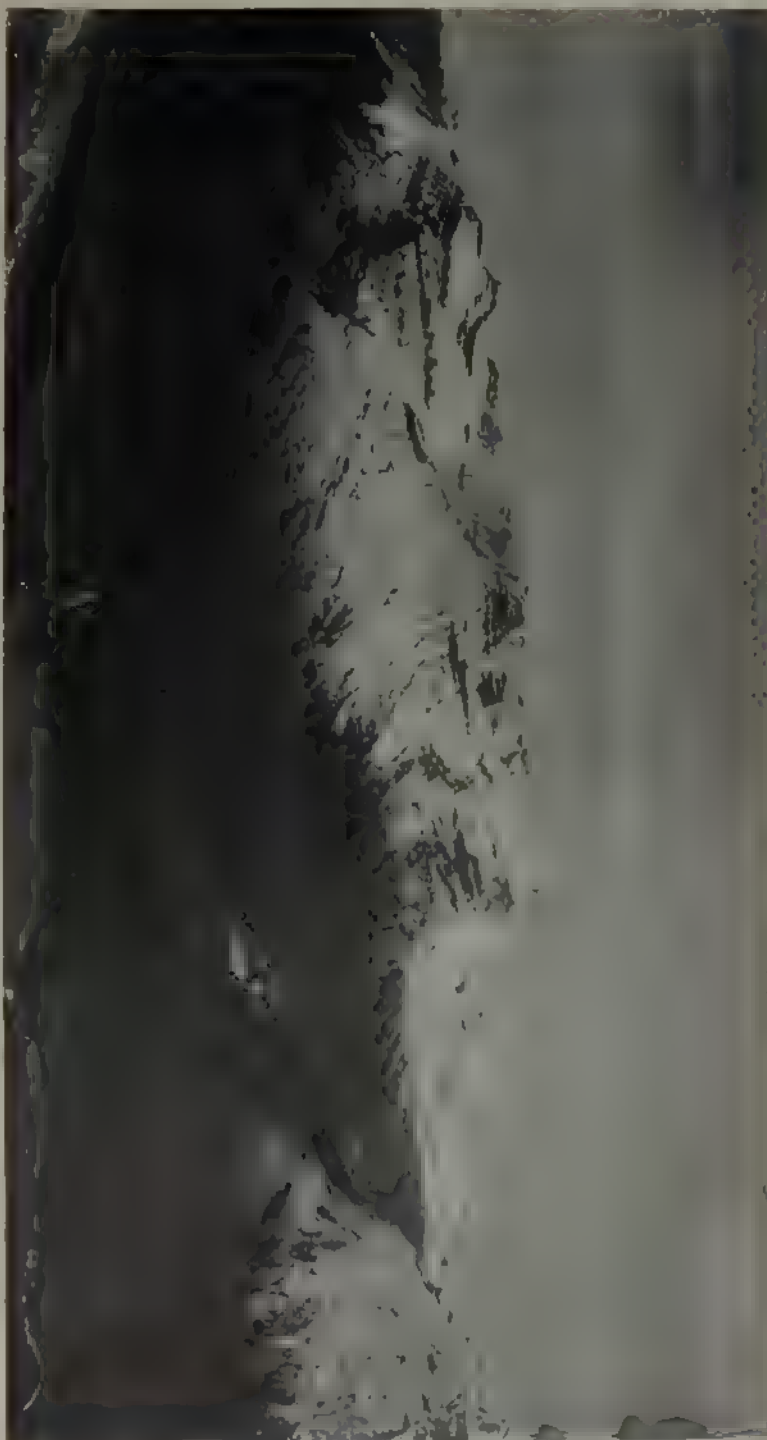
¹ See also *Alpine Journal*, No. 132 (May, 1896), page 119.

the Divide diverges from the ridge which would have brought it over Mt. Whyte. In this view a considerable *névé* is seen sweeping up to a *col* in the foreground, on the left of which is a sharp, dark rock peak, and on the right another¹ less high and pointed. Over this *col* rises Despine, while nearer and a little to the right is a lower mass whose side towards us is a frowning precipice, at the base of which is an *arête* of snow. This precipice is only the lower pitch-off of a fine nameless snow-peak to the left, not very definitely indicated on the new map, but located and accorded an altitude of 10,335 feet in the map accompanying Mr. Wilcox's book. It is to this peak, by its eastern side, that the Divide ascends from the *col* separating it from Despine, and it descends over the dark precipice, and reaches the final ridge by way of the snow *arête* at its base. Unfortunately Mr. Wilcox's negative just missed including this interesting peak as seen from its near neighbor, Pope's Peak. It shows finely, however, in our illustration (Plate XX.), being scarcely less impressive than the north peak of Victoria itself.

It would be difficult to secure a single view more enlightening than this as to the entire northern end of the Bow range. We owe it² to the courtesy of Mr. Wheeler. It is from one of the numerous series taken by him last summer from so many stations thereabout. It represents the scene just after a light fall of snow. The view point is a low summit just north of Wapta Lake, and overlooking it. It faces directly up Cataract Creek, and in the distance, on the extreme right, is Mt. Odaray, with the depression of McArthur Pass to its left. To the left of the pass we have, first, Park Mountain (directly behind which heads Misko Creek); then, separated apparently from Park only by the lower Mt. Schäfer, springs Mt. Biddle; next, the still loftier Mt. Huber pricks the sky, followed immediately by the massive snows of Victoria's northern peak. One must now scan more carefully to identify Nichols and Despine on

¹ This latter is what one sees from the railway right over the sign "The Great Divide," as he is opposite this structure. The watershed follows the high ridge seen to its right, and plunges down over the bold promontory, a little farther west, in which that ridge boldly ends.

² As also many other of the views that were shown in connection with this paper.



THE NORTHERN END OF THE BOW RANGE
From photographs by Dominion Topographical Survey

either side of the nearer Boundary Peak, Despine mingling in with the right spur of the lofty nameless snow-peak. From the latter the watershed is easily traced, though close inspection only will detect that the steep precipice already mentioned as the "pitch-off" is now relieved against the snowy slope of the more distant Lefroy. Of the two sharp rock peaks of Wilcox's photogravure, the one followed by the Divide is seen dazzling white in its snowy obverse; the other is just to its left; then comes immediately the massive summit of Mt. Whyte (a mere spire when seen end-on from the Chalet), and finally Pope's Peak preceding the gradual descent to the valley of the Bow.

Finally, a word regarding certain revelations of a comparison of the Palliser map (1865) with present knowledge of the Bow range. That early chart makes bold to indicate (of course very approximately) the line of the watershed. It is safe to assume that the Bow Valley and its neighboring peaks were far more familiar than those along the Vermilion and Beaverfoot rivers, and things set down in this vicinity would have a presumption of greater comparative accuracy. Mounts Lefroy, Goodsir, and Vaux are first located on Palliser's map. Certain striking angles of the watershed are noted. It is at one of these, the one made at the summit of Peak 1, that Mt. Lefroy is located, which coincides with the identification made from the bearings of Hector's Journal by the Topographical Survey in its investigations of the Lefroy question a few years since. Peak 1 was doubtless the original Lefroy of Hector. Mt. Goodsir is also set down as a watershed peak, and located at the next sharp angle. But for Goodsir's too great distance, we might infer it to be Deltaform. On the whole it is safest to infer that the topographer "nodded" here. But it is exceedingly interesting to notice that, as regards Mt. Vaux, the map again tallies with Hector's Journal, which says that the watershed crosses from Mt. Vaux to the eastern end of the Waputehk mountains. This combined testimony would make it practically conclusive that something at the northern end of the Bow Range was the Mt. Vaux of Hector; and, owing to its impressive appearance as seen from Hector Pass, we should incline to believe — while doubting that the first explorer saw things with the comparative

correctness which results only from frequent visitations — that the north peak of Victoria is the likeliest candidate for the honor of early baptism as Mt. Vaux. But “let bygones be bygones.”

Pilot Dome in Winter.

BY RAYMOND M. DOW ADAMS.

THERE is a certain quality of pureness, and of the sense of being higher up, in the air of the “north country,” especially in winter, which gives to any expedition, or even to a day’s outing among the mountains, an enthusiastic charm always rather different from the enjoyment of the same amount of recreative effort in other places, even though the details of scenery and satisfaction may be equally great.

Such was the spirit of the air on the eighth of January, when four of us compressed ourselves, with an accompaniment of lunches and snow-shoes, into a sleigh, and drove toward the Pilot Mountains, which, clear of several days’ muffling in high snow clouds, were lifting their glorified tree-tops like coral reefs in an ocean of sun-lighted air. Six miles toward these ridges of light brought us to Lost Nation at the base. Leaving the team, a two-mile walk up an easy grade logging road, through the narrow pass of the brook that comes out between two close projecting spurs of the Pilot range, reached a small camp.

The sight of oxen busy with their hay was not necessary to remind us of a similar desire, and we hurriedly sought the way under the low, ice-bordered roof of the camp, where the inevitable tea, the joy of the heart of him who works or plays within the forest, added to our lunch, made the warm log-house a delightful spot. The cordial hospitality of the camp-dwellers, especially the cook, is always good cheer.

At half-past twelve we strapped on our shoes, said good-by, and struck off up the brook into an amphitheatre between the spurs of Pilot Dome and the ridge across the north. The balm of spotless snow healed a great logging slash, and the lace-like meshes of snowy trees were, by contrast, emphasized in their beauty. We had come around the end of a northwesterly spur, which, now leaving the brook, we attacked on a generally slant-

ing line toward the summit of the mountain. This for a time was easy going, though the young growth was whip-like in its limber tips. We were soon forced to go straight up the ridge. This was chiefly due to a scattered windfall, and the passage through the tangle of fallen logs, crowned with two or three feet of snow, sometimes under, sometimes over, up bits of trunk and limb-bridged rock-wall, and over places where one might have found difficulties, not amusing but alarming, had he gone in all unprepared and alone. In some such place the photographer, with some unusual gymnastics and considerable throwing about of snow, placed all the extra films. We did n't think he did it on purpose, but rather congratulated him that he thus disposed of nothing else, except a can-opener and two spoons.

For some distance the snow rapidly became a more and more charming adversary, and grew steadily deeper all the rest of the way. Hands, feet, and knees all came into full play (or work), and as mittens got wet and bare hands "caught on" with frost, if they gripped too long, we lost no time, and soon came to the first long-distance view-point. It goes without further description, as a fact to any mountain lover, that words of admiration were our spontaneous greeting.

Turning up the ridge we walked, as on an ocean floor, in a grove of giant coral, under a sea of blue sky above and all around. The bare, dead branches of trees were deeply incrustated with frost-feathers and snow, the tops of small evergreens were but cones of solid white, and the larger firs and spruces were heavily weighted with the same wondrous beauty.

We saw many rabbit and deer tracks, and heard the snort of a startled buck, as he sprang from the hole he had dug down to the moss. It was easy going along the ridge, but only occasional and rather limited were the views.

As we neared the top we found a rapid increase in the amount of snow, and there came the curious sensation of seeming to feel the depth of the mass under our feet. Shortly we stood on the summit of Pilot Dome, and though the fear of frozen mittens prevented climbing a tree for a good view, there was much to repay the labor of the ascent. In fact the joy of every foot gained is due reward, and here at the summit we felt the meaning of winter. A mountain-top forest, all deep-muffled in untrodden snow,

its trees all but solid with its mass of white, and so wrapped in its softness that one could hardly be heard to shout a hundred feet away, and the absolute stillness of perfect winter! The silence could almost be felt; in fact, snow itself is "tangible silence." Such was the wonder given to us, who in the love of out-of-doors, conquered the unmarked pathway to such exaltation! And then there came the sense of isolation, the fear of the soon falling shadows, and of clouds obscuring the moon, and the great desire to get to the realm of assured safety! Freezing mittens, and a frost-nipped ear, said in nature's own words: "Winter is cold; you may reverently and enthusiastically enjoy, but you must not trifle." And we went down. Rushing, sliding, dashing through the underbrush, we entered camp just as the twilight entered the mountains.

The Pilot Mountains, on account of their wooded summits, and their numerous peaks lying near together, do not afford views like their greater neighbors, but they give fine views of those, and of the Connecticut, Israel's, and Upper Ammonoosuc valleys, and furnish plenty of wild, rough tramping. They served as the "land pilot hills" to guide early hunters and explorers to the Connecticut Valley, and they are a grandly imposing range, of great dignity in their appearance of bulky mass and deep ravines, and rising to a considerable height. South Peak was listed by Hitchcock as 3827 feet, which, from comparisons with other measurements made in the same list, and since found greater, appears to be too little. Since Pilot Dome somewhat exceeds this peak, judging from such comparisons as could be hurriedly made on our recent ascent, it would seem to approach 4000 feet in altitude.

The Pilots deserve more attention from our Club.

The Proposed Eastern Forest Reserves.

BY GIFFORD PINCHOT, UNITED STATES FORESTER.

Read January 20, 1906.

BEFORE beginning to say a word or two about the problem which is to come before us to-night, I feel like congratulating the State of Massachusetts on two things. Not that these are by

any means the only things on which the State is to be congratulated, for it leads in countless good movements. The first is the work that Massachusetts has undertaken, thanks to its Forestry Association, in which the most active figure, I think, has been the President of the Appalachian Club. The work that Mr. Chamberlain has done, let me say, is more than worthy of all the recognition that you may give it, — fine, strong, and 'continuous work through many years, carried on to success. And, secondly, I congratulate you on the progress that the State has made, and is about to make, through having a State Forester of its own, — one who, I am proud to say, is also associated with the National Forest Service in Washington, one whose plans are sound and who is going ahead on lines that promise success. Massachusetts has done well in these matters.

And now comes another question on which the State is asked to do well for itself, through work to be done in part outside of its own borders.

A number of years ago it was first suggested that forests should be preserved in the Southern Appalachian Mountains. The attention of thoughtful men had been drawn to the fact that great injury was being done to the streams, great damage was accruing from floods, and great forest destruction was going on in the Southern Appalachians, and agitation began to interfere with the progress of destruction. Then far-sighted men at this end of the great chain took up the matter; and now coming from North and South these two movements have met, and the last stage of the two is the amalgamation of the two bills for the two Reserves in a single measure (so far as that could be done without Congressional action) by the American Forestry Association, acting for all who are interested in both of them, and what we are hoping to see is the passage of a single bill carrying to success the two measures which have been advocated by two entirely different sets of men.

It is a curious thing that these two bodies of mountains, so different geologically, so different in their forest conditions, yet may be treated with precisely the same argument for their preservation, almost throughout.

Before I say a few words as to just why I think this thing ought to be done, I want to show you a very few views illustrat-

ing on the ground just what the condition is with these forests.¹ I am going to begin in each case near the tops of the mountains, follow them down, and indicate very briefly some of the reasons why they should be preserved.

First is a typical timberline forest in the White Mountains, showing the condition of that high forest before it was touched by fire. The second view shows a somewhat similar forest on Sugar Loaf Mountain after being devastated by fire; and I call your attention particularly to the absolutely barren condition of the rock after the fire has run over it. The replacing of the forest under conditions such as this is a matter of tens and perhaps hundreds of years. The damage done is not absolutely irrevocable, but from the point of view of those of us who are here upon earth it comes very near to being so. Fire is the great scourge we have to fear in the White Mountains. When a fire runs through the forest, what is left by the lumbermen goes instantly, so far as we are concerned.

Another view illustrates a somewhat different state of affairs. Here a forest, not quite so high, has been cut over first, and then the few trees which were left, and which should have provided the second growth, have gone by way of fire, and now there is nothing on the ground but a tangle of dead wood, with a few hard woods coming through them, — the whole a perfect fire-trap which, under the circumstances, is almost sure to be burned over again. For it is not only a single fire, in many cases, that does the damage: it is a continuous succession of fires. And if there is anything clearly proven, so far as forest fires is concerned, it is the difficulty in such a region of protecting forests against fire when the forest is subject to the vicissitudes of changing ownership.

As we descend the slopes of these high mountains, gradually we come to the lower benches, where the forest is level and where the effect of the lumbering is less severe.

There is a good deal of mountain land through New England, — medium mountain land, so to speak, — which, while it is not absolutely forest land, is yet capable of producing more effectively under forest than it is under any other crop. Much of that land will be held by the lumbermen themselves under the

¹ The lecturer then showed the audience a number of stereopticon views.

enlightened ideas which are coming to them so widely, and need not therefore be taken by the Government in order to be safe. Such timber as this produces rapidly, grows well, and is of value to the lumbermen. Many of these mountain forests in New Hampshire contain not only spruce, the most valuable tree, but also hard-wood trees.

In the attack on the New Hampshire forests that has been going on for many years, much of the best of the forests has already been destroyed, great areas have been cut, and even now the most important of the mountain forests that remain are threatened. It is a critical question whether those of the White Mountain region are to be treated as in these pictures, or whether they are to be taken under the protecting wing of the Government and handled as they ought to be.

I find it difficult to convey an impression to any audience, however intelligent, of the tremendous destruction that takes place through forest fires; and for that reason I have chosen for the pictures of the White Mountain region this evening mainly pictures showing destruction by fire. For, however serious the lumbering may be, the great question there is not the need of conservative lumbering instead of destructive lumbering, but first and foremost the protection against fire. The results are so bad, and the length of time during which they continue to inflict injury on the people who come after those who did the harm is so great, that no impression I can give you of the damage by fire is too strong.

These pictures show you soil of no value whatever except for the growth of trees; and it has been rendered of almost no value whatever for that purpose since fire has completed the work of destructive lumbering. Much of the land once cleared, if it had been possible to protect it adequately, would have come back again to second growth; but much of the land which has been trying to come back to second growth has been treated like this white pine thicket, where young trees twenty feet high have been destroyed to make more pasture. I am distinctly for the utilizing of any piece of land for that purpose for which it will produce the most good; but there are many parts of the earth where that purpose cannot be achieved under private ownership.

Now I am going to ask you to pass for a moment with me to

the Southern Appalachian region, where I will show you a few views of a different kind of destruction. In the North, fire; in the South, agricultural destruction for a while, and then erosion, — these are the great forces that are doing the harm.

This is a timberline forest on Grandfather Mountain, and, with the succeeding pictures, shows lands of wonderful beauty and of very great value for purely economic reasons; for however much we may each of us value the sentimental view of the forest, nevertheless it is the business view that must control if we are to succeed in doing the thing we have set out to do. Throughout this region of the Southern Appalachians the small farmers have taken up here and there a little bit of land. For example, here a farmer has settled and cleared his land by deadening the trees. Very soon he forms a little clearing here, with the dead trees standing and a little growth coming in on a moderate slope. But I want to show you what happens when the slope is severe. The tributaries of streams which carry only a moderate amount of water, and that water always clear, after heavy rains are filled by *débris* coming from land such as this. And even measures to arrest erosion, such as the building of dams or brushwood fences, expensive as they are, with difficulty effect it. In other words, we get a double result from forest destruction in the Southern Appalachians: the destruction of the soil at the headwaters of the streams, and the deposition of that soil lower down, to the injury of the interests concerned.

Here is a farm in one of these rich mountain valleys; a large part of it has been washed away by the streams, and the soil replaced by stones and sand — a kind of damage which has amounted, within a comparatively short time, through that Southern Appalachian region to many millions of dollars. The official estimate of the total loss during a single twelvemonth was \$18,000,000, and during the year 1901 the total damage along the tributaries of streams was officially ascertained to be \$10,000,000, — not only the destruction of agricultural lands involving the destruction of homes, but, almost as important, the unsettling of all values along the bottom lands, the practical destruction of the value of the farms, not only to their owners directly, but to their owners as security for loans and as valuable pieces of property for negotiation.

The reasons why these forests should be preserved, different as the conditions are in different parts of the Appalachian chain, north and south, practically meet. We have got first the fact that it is wise policy to have these lands preserved, and for many different reasons. For example, we are now using, incredible as it may seem, ten times as much timber, valued in dollars, as we were in 1850, while the population of the United States has only increased three times. In other words, the census of 1850 gave us \$60,000,000 as the value of the produce of the forests, while the census of 1900 gives \$566,000,000, and during the same period the population has only increased from 23,000,000 to 76,000,000.

The timber question is far more than a business question, in the sense that it is utterly impossible for us to repair the damage of forest destruction in any reasonable time. You may start a mine which has been stopped, and there is little damage; you may let a farm lie fallow and take up the cultivation of it again, and the farm is better than it was; you may begin once more fisheries that have been abandoned, when the fish have returned; but the destruction of the forests means the destruction of the growth, the productive capacity of the land, through a long series of years.

The shortest possible time in which the damage of a timber famine can be repaired is fifty years. And all the signs point to the fact that unless the people of the United States, especially the Government of the United States, wake up to the present condition, we shall have a famine in that material, which, even more than steel, stands at the bottom of the productive industry of this country. For you can operate no mines, you can operate no railroads, you can have no farms, you can conduct no fisheries, you can conduct few manufactures, in the absence of timber. In this age of steel, timber is, nevertheless, one of the great essentials of civilization, and from a timber point of view we must preserve our forests. Therefore, since forest destruction is going on in the Southern Appalachians and in the Northern Appalachians, the White Mountains, it is a wise policy for us to stop that destruction, and to let the lands that are better capable of producing timber than anything else produce that timber crop.

Now, secondly, it is wise policy from a business point of view.

This that I have been speaking of is a larger question than any of business, but it is wise for the Government, from a business point of view, to take possession of these forests and handle them. For example, when this movement first started for a reserve in the Southern Appalachians, it was very conservatively estimated that we could get all the land that we wanted, including the timber, for \$2.50 an acre. Now I happen to know of one large tract in the Southern Appalachians which was bought for \$2.50 an acre at about the time that this movement began, and the owner of it, within the last year, has given an option on the timber alone, without the land, of many tens of thousands of acres. That timber can be cut under the rules of conservative forestry, just as it would be by the Government, at \$15 an acre; and much of the land has sold at higher prices. That is to say, through delay we have reached a point throughout the South where we can get only the land, without the best of the standing timber.

It is perfectly clear that as an investment it would pay the Government to create these reserves. This has been the first year of the organization of the Forest Service, and the national forest reserves have this first year met nearly half of the total charge for Forest Service; and it is the confident expectation of those of us who are handling the matter that within from three to five years the Forest Service will be self-supporting, and a permanent source of revenue to the Government. And precisely the same method of handling will in the end give us the same sort of revenue from these forests. In other words, the purchase which is asked for is a purchase which in the very nature of things is bound to be a profitable one. Therefore, it is good statesmanship and it is good business to buy these forests. That is regarding it purely from a lumber point of view.

Now let us consider it for a moment from the point of view of water supply; and here is the nub of the question, North and South. It is estimated that there are 2,700,000 horse-power used for manufacturing in New England; and in the Southern States more than half a million horse-power (of which 180,000 are produced by water) are already in use, and not less than a million horse-power are capable of being developed. Now what happens, of course, in any region rich by nature, is that men

coming in first of all use the natural resources, cut the forests, open the mines, over-crop the farms, skim the cream. Whatever the virtues of our race may be, and they are very many, it is a fact that wherever the white man, and especially the Anglo-Saxon, sets his foot, the first thing he does is to take the cream off the country, and after that he settles down definitely and quietly to develop it along more rational lines. Now we have taken the cream from our forests North and South, from our rich agricultural lands in the West, from our mines, from all the other natural resources that we have, as fast as possible.

But following the destruction of natural resources comes the era of manufactures. Now that era is wonderfully well developed here in Massachusetts, and is just about at its most rapid growth in the South; and it would be nothing less than suicide, from the commercial and manufacturing point of view, for you here, and for those in the South, to allow the destruction of the forests from which comes the water that turns your wheels. Not only is it necessary for you to protect yourselves against floods, — one single flood at Holyoke some time ago cost \$100,000, — but it is fair for you and for the South to look forward to the maintenance and the increase of the means of wealth which you have at hand. It is a direct question of self-preservation in business for you, whether or not you are to allow the destruction of the sources from which so much of your wealth has sprung in the past, and from which, under proper conservation, still more will spring in the future.

Now, granted for the sake of argument that these forests ought to be saved, the reply very many times is: "Yes, that's true, but this is not a national question; the States in which these forests lie ought properly to take care of them, and we may fairly leave that matter to them." And it is cited that the State of New York has bought a million and a quarter acres, that Pennsylvania has bought 700,000 acres, and so on, — the plea being that in New Hampshire and North Carolina, Georgia and South Carolina we may ask the States also to make these provisions for the safety of the forests.

That argument in general is good, and it is good here, except for a single reason. There are two great regions east of the Mississippi River in which waters centre, from which waters

rise: the Southern Appalachians, which feed streams tributary to the Ohio, and to the Mississippi, streams which flow into the Gulf, and also streams which flow eastward to the Atlantic, through Georgia, South Carolina, North Carolina and Virginia — a great three quarters of a circle of living streams flowing from this single region of mountains; and the second region is the White Mountain area in New Hampshire, out of which streams flow into all the other New England States, except Rhode Island.

The reasons why the United States Government is asked to take care of this matter in the South and in the North is that the benefit to be derived from forest preservation in one State is to be felt in another. It is an inter-state question, and as such is not to be handled by any other state.

Then the objectors say: "Suppose we buy a region in the Southern Appalachians and in New Hampshire, where shall we stop? Every State will be asking us to do the same thing." That would be a good objection except for one thing, and that is, that we have already the headwaters of every single stream in the United States except these of which I am speaking, protected more or less — in theory, if not in practice. All the great streams of the West take their rise in national forest reserves; and the great policy of irrigation, perhaps the largest forward step that has been made in the national housekeeping for many years, depends absolutely on the protection Forest Service may be able to give these streams. The Mississippi River takes its rise in a national forest reserve; the Hudson, which begins and ends in the State of New York, rises in a State forest reserve. But all the protection in the West, all the protection in New York State, does not cover this question that I have been laying before you; therefore the objection of which I spoke does not apply. In other words, we have eliminated the regions which might ask for further protection, and we have left simply these two regions from the Potomac south along the Southern Appalachians and in the White Mountains of New Hampshire, in which the water is an inter-state question.

Now if I am right in thinking that this is an inter-state question, and if the objection that other States will come and ask for the same thing is not valid, then why is not the thing done? why

has not it been done already? The answer is a perfectly simple one: that the people who are interested in this matter have not made themselves heard. I have lived in Washington long enough to know that, whatever any other government on the earth may be, this Government of ours is a representative one, and that what the people ask for and mean to have they will get, be it right or wrong—for no man has lived in Washington long without seeing mistaken demands enforced on congressmen and senators, as well as demands that were right. It is simply a question of how much and how earnestly the people of the New England States desire the White Mountain reserve, and how much and how earnestly the people of the Southern States desire the Southern Appalachian reserve; and nothing else will secure them. President McKinley has spoken in favor of the movement; President Roosevelt has given it his hearty and his most effective support; your best men here in Massachusetts have pronounced in favor of it over and over again; we in Washington have put in our little word here and there where the occasion demanded it or where the occasion made it possible, we have spoken sometimes in season and sometimes out of season, all to no effect. The matter is purely one which rests with you.

Now you have a body of men in Congress from New England who are simply irresistible when they go after something. The Southern members united on this subject would be equally so. These two bodies of men asking for an appropriation of three millions of dollars out of a total budget of six or seven hundred millions would, of course, get it without the slightest difficulty; and they will get it whenever you ladies and gentlemen in this State, in New Hampshire, in Vermont, and Connecticut and Maine, make up your minds that you really want it. And until you impress upon your representatives in Washington the fact that you really want it, I think I am perfectly safe in giving you my word that it never will be done.

Finally, if I have given you the impression that this movement does not look hopeful, I should like to correct that impression. I have been engaged in this fight since it began, and I have never seen the day when the chance of success in both these directions was anything like as bright as it is to-night.

ALPINA.¹

ANNUAL MEETING OF THE AMERICAN ALPINE CLUB. For the first time since its organization, the Club met at Boston, assembling in the rooms of the Appalachian Mountain Club on the afternoon of December 28. In addition to President Fay, Treasurer William S. Vaux, Jr., and Secretary Henry G. Bryant, the following members were present: Messrs. R. F. Curtis, Lawrence, Parker, Putnam, Richardson, Sampson, Whipple, and Misses Peck and Vaux.

President Fay announced that the plan whereby the pages of APPALACHIA would be available as a medium for publishing articles written by Club members and alpine notes of interest had been successfully arranged. To fill vacancies, Professor John Muir was elected Western Vice-President, and Professor Joseph N. LeConte a Councillor of the Club. The Publication Committee reported progress in the preparation of monograph illustrations of the mountains of North America. The report of the Treasurer showed the finances of the Club to be in a healthy condition. After the consideration of further routine business, the members listened to a résumé by Miss Peck of her two trips to South America, undertaken with the view of climbing Mt. Sorata. Professor H. C. Parker also exhibited a number of slides, illustrating mountains in the vicinity of the Valley of the Ten Peaks in the Canadian Rockies.

Members and guests to the number of twenty-two subsequently met at the Annual Dinner, which was held at seven o'clock the same evening, at the Exchange Club. Among the informal speeches made on the occasion was an account, by Gen. Hazard Stevens, of his first ascent of Mt. Rainier in the year 1870. Rabbi Charles Fleischer, Mr. Edwin H. Abbot, and Miss Peck also made brief addresses, and the President followed with an illustrated talk on the course of the Continental Divide over the Bow Range.

PRESIDENT ROOSEVELT AND ALPINISM. Few of those who know of the President of the United States as a lover of out-of-door sports, and even as a hunter among the wild and mountainous regions of the far West, are aware of the fact that he is no stranger to the exhilarating pleasure of alpine ascents. Indeed the fact seems to have become known abroad earlier than in his native land, for his name has appeared for the past four years upon the brief list of honorary members of the famous Alpine Club that has its home at 23 Savile Row. Upon the list

¹ These notes (see Vol. XI. p. 50), are prepared by Harrington Putnam, A. A. C., or under his direction.

of his ascents are recorded the names of the Matterhorn and the Jungfrau, both ascended during a sojourn in the Alps in 1881. The accompanying letter consequently needs no further explanation.

THE WHITE HOUSE, WASHINGTON, February 28, 1906.

MY DEAR SIR: Your letter of the 27th instant, notifying the President of his election to honorary membership in the American Alpine Club, has been received. The President appreciates the compliment, and is glad to accept honorary membership in your organization.

Very truly yours,

WM. LOEB, JR.,

Secretary to the President.

MR. HENRY G. BRYANT, SECRETARY,

AMERICAN ALPINE CLUB, ROOM 806, LAND TITLE BUILDING, PHILADELPHIA.

THE LATE ISRAEL C. RUSSELL. Not only has geological science lost, by the recent death of Professor Russell, one of its leading exponents and busiest workers on this side of the ocean, but the American Alpine Club is called to mourn one of its most distinguished founders, a member of its Board of Directors from the beginning, and (it is no disparagement of the achievements of others to say) the member whose personal achievement in alpinism was unsurpassed for boldness and skill in execution, even where it failed of ultimate success. Others have spoken (see *American Journal of Science* for June) of his busy life and his contributions to scientific knowledge, especially pertaining to the Cascade range. It remains only for us to again call attention to his expeditions to Mount St. Elias, in the second of which in 1891 he attained the high *col* (14,500 ft.) now bearing his name, the place where the party of the Duke of the Abruzzi made its highest camp in its successful ascent in 1897. In the story of the Italian expedition tribute is paid to "Russell's tenacious and often rash courage." Tenacious it was, and rash it might seem when one considers that he lacked experience in alpinism and had no guides nor experienced companion. Yet censurable rashness was the reverse of Russell's nature. The best evidence of his temper is shown in a circumstance which we quote from the Abruzzi narrative:—

"After several hours' march, Russell and Kerr discovered that they had very little petroleum left. This was a serious blow. . . . In this emergency, Russell decided to push on alone. . . . As evening fell Russell halted, tired out, rigged up his tent and went to sleep. During the night it began to snow again and continued for two days. . . . The tent was half buried, the sides bending in beneath the heavy weight; Russell . . . was forced to hollow out a chamber in the snow. Having no petroleum, he contrived to make a feeble fire by means of a rag dipped in melted bacon. For six days he remained alone in the waste of snow; then, as the weather cleared and none of his comrades appeared, he went down the mountain to seek them."

Members of the Appalachian Mountain Club, of which he was an Honorary Member, will remember the lecture in which Professor Russell described this expedition in December, 1883. Passing lightly and without detail over the circumstances here quoted, he merely remarked quaintly on the solitude of the situation: "Rather trying for one with an active imagination."

The members of the Alpine Club who were present at the annual dinner in Philadelphia in 1904 will recall his notable expression of the esteem in which he held his membership, and all will deplore his genial companionship and the loss of his sound judgment in the Club's councils.

PROFESSOR HEILPRIN'S RESEARCHES AT MT. PELÉE. Under date of March 12, Professor Heilprin wrote to a Philadelphia friend that his visit to Martinique had been entirely successful. On the twenty-seventh of February he had made his way to the top of Pelée and then descended into the crater. He even ventured to crawl up the still smouldering dome, to about half its height. The chief purpose of his research was happily fulfilled. This was to look for the strange tower, or needle, that appeared after the last eruption. Professor Heilprin ascertained that this was a solid block of rock—a fact of great interest to all who had speculated on the structure that arose and disappeared three years ago.

THE ALPINE CLUB OF CANADA. On March 27–29, 1906, an enthusiastic meeting of Canadians interested in the development of the magnificent alpine districts of the Dominion as a field of sport and recreation, was held in Winnipeg. Persons were present from the entire country, from Halifax to Vancouver. Responsive to the strong sentiment of nationalism at present developing on that side of the international boundary, the question whether the new organization should be a section of the American Alpine Club or an independent society was decided in favor of the latter alternative, and so the Alpine Club of Canada came into being. At the head of its board of officers as Patron stands Sir Sandford Fleming; its active Executive is Mr. Arthur O. Wheeler of the Dominion Topographical Survey, and its Secretary, Miss Elizabeth Parker, of Winnipeg, the home city of the Club. It starts with a membership of seventy-seven, thirty of which are "active members," having to their credit the requisite record of a peak at least 10,000 feet above sea-level; thirty-six are "graduate members"—a novel feature in alpine societies, but one eminently practical in a

country where the sport awaits the stimulus of a propaganda. "Graduate members" are persons not yet qualified, but who wish to affiliate with the Club to obtain assistance in becoming so. As a means to this end summer camps are to be held in the Canadian Alps, during which excursions to peaks of the requisite altitude will be organized. A period of two years is given in which to qualify, but the probation is not renewable. The camp for the coming season will be held at Summit Lake, in Yoho Pass, in early July. Persons from the United States are equally eligible with Canadians to membership in the Club. All lovers of mountaineering will extend a greeting to the new organization.

ANOTHER ATTEMPT ON MT. MCKINLEY. Dr. Frederick A. Cook and Professor Herschel C. Parker left Brooklyn on May 8, starting on their Alaskan trip to explore the eastern approaches of Mt. McKinley. Dr. Cook's expedition in 1903 followed a route from Cook's Inlet recommended as practicable by members of the United States Geological Survey. His arduous march inland and adventurous climbs on the south-western approaches revealed a vast height and extent of snow line, leading up to precipitous faces that showed insuperable obstacles on that side of the mountain. The hope now is to seek better conditions along the eastern spurs.

Mt. McKinley presents special difficulties, besides its 20,000 ft. altitude, and the distance of one hundred and seventy-five miles from tide-water. It is almost entirely above the snow-line. Such an extended snow and ice slope requires transit arrangements for supplies and successive camps as bases of advance, like those used in the Himalayas. Although in latitude of 63° , its spurs and foot-hills really are under Arctic conditions. In this respect, as well as in previous Alaskan adventures, Dr. Cook's experience should stand him in good stead. He has the unique fortune to have wintered both in Arctic and Antarctic polar expeditions, and is therefore quite at home in any weather conditions about Mt. McKinley. Professor Parker brings to bear a wide climbing experience. He has proved his ability in the difficult rock and ice work of several brilliant first ascents in Canada.

It is proposed to enter by Cook's Inlet, and thence ascend the Sushitna river, by a shallow-draft steamboat, so that the stores can be landed and a permanent camp made some fifty miles from the mountain. In this way, the party may reach Mt. McKinley before July. As the obstacles along the line of advance are quite unknown, and require much preliminary observation and scrutiny of different approaches, an actual ascent this season is hardly expected. The purpose of the present journey is rather to serve as a preliminary to a later organized attack;

hence no alpine guides have been engaged to accompany the party. Experienced camping assistance can readily be procured at Seattle, and doubtless one or two voyageurs may be taken on, to aid in the river navigation, and as porters.

This trip should decide the question of practicable routes, and lead the way for the highest of North American peaks eventually to fall to members of the American Alpine Club.

THE ITALIAN EXPEDITION TO RUWENZORI. A fresh mountaineering essay by the Duke of the Abruzzi is sure to arouse the attention of the Alpine world. Such an expedition to scale the African "King of the Clouds," Mt. Ruwenzori, is of special interest, owing to the long and elaborate preparation made by the Duke for this, his hardest task. The details of the outfit have, no doubt, been as carefully arranged as was his Alaskan expedition to Mt. St. Elias in 1897, and his subsequent polar voyage. No previous mountain trip had ever more minute preparation than that which captured Mt. St. Elias. The conditions of this African journey, however, do not permit of laying down the dates as accurately. The calculations for his future movements were then made with more than military precision. Disembarking near the foot of the Malaspina Glacier in June, he ordered his yacht to return for him "between August tenth and eleventh," with a result that on the afternoon of the tenth he had safely conducted his party back to the beach for embarkation.

The Duke is again accompanied by Captain Cagni, having also the accomplished photographers, Signors Sella and Botta, with other companions of adventure, aided by six guides. The railway from Mombasa and lake navigation carry the company near the outliers of the Ruwenzori Range. A native caravan of two hundred and fifty porters has been engaged, and three months is the time allotted for this quest. The arrival at Mombasa was on May 3.

Previous attempts on this mountain have resulted in attaining altitudes of 14,500 feet by Mr. Douglas W. Freshfield in 1905, and about 16,000 feet by Dr. David (a German) in 1904.

The peculiar effect of an excessive equatorial rainfall with its prevalent mists, during ten months in the year, has given individual character to the approaches to Ruwenzori. Pictures of its rival peak, Kilimanjaro, the loftier summit to the westward, conquered by Meyer in 1889, indicate conditions of scant vegetation, more like northern summits. But at Ruwenzori there is apparently much less of intervening bare rock surface below the snow line. Instead of there encountering those dreary rocky wastes —

“an image of the pristine earth,
The planet in its nakedness” —

Ruwenzori rises from its belt of dense tropical woodlands, with dark recesses filled with a strange mass of vegetation that Mr. Freshfield called “incredibly grotesque.”

In overcoming all these difficulties the expedition will also settle the vexed question of the altitude of Ruwenzori, which has been estimated at 18,000 feet. As the party of mountaineers make their attacks, which may have to be repeated, it is hoped that the pall of overhanging mist and clouds may be parted by intervals of sunlight, so that new photographic spoils may be added to Signor Sella's unmatched collection.

THE FIRST CROSSING OF MT. COOK. The *London* (weekly) *Times*, April 20, gives a vivid account of the first crossing of the highest mountain in New Zealand, on January 9 and 10, 1906. This is Mt. Cook, which had been first ascended on Christmas, 1894. An English climber, Mr. S. Turner (also an explorer in Siberia), accompanied by Mr. T. C. Pfyfe of New Zealand — who had before made the first ascent of Mt. Cook — and two other New Zealand alpinists, joined in this notable achievement.

The route taken was by the great Tasman Glacier up the Glacier Dome, passing over the summit and thence down Green's Saddle to the Hooker Glacier. This involved a trying descent of a steep 2,000 feet couloir, which involved nearly continuous step-cutting. This first crossing was negotiated after a climb of thirty-six hours. Although Mt. Cook is but 12,349 feet high, it has a lower snow level than similar European mountains, with far greater extent of glaciation. Thus the great Tasman Glacier is eighteen miles long, against comparative lengths of 15.5 miles for the Swiss Aletsch Glacier, and less than eleven miles for the Bezinghi (Caucasus) Glacier.

It is interesting to note that the climbers of New Zealand, which has now fairly become the playground of Australasia, speak of their own summits comprehensively as “The Southern Alps.”

ALTITUDES ON THE PACIFIC SLOPE. The recently issued Dictionary of Altitudes from the United States Geological Survey, under the editorship of Dr. Henry Gannett, while covering the entire country, is of special interest in its treatment of the summits of the Rockies. California is now credited with twelve peaks rising over fourteen thousand feet. The long standing rivalry between the partisans of Shasta and Rainier as to their relative heights appears to be decided by the Survey in favor of Shasta. The Dictionary gives Shasta 14,380 feet against

14,363 for Rainier. Neither summit has ever been reached by lines of levels, hence these results are necessarily only approximate. Last summer very careful determinations by Professor McAdie by boiling point, and the mercurial barometer (with corresponding readings checked by Professor Le Conte) indicated for Shasta a height of only about 14,200 feet (*Sierra Club Bulletin*, vol. vi. p. 8). Mt. Whitney's true height has been most precisely measured by two independent lines of levels starting from opposite known bases. It has now been settled as 14,502 feet.

SUMMIT TEMPERATURES IN WINTER. As a preliminary to mountaineering in winter the ascertainment of the temperatures to be encountered is desirable. Professor McAdie in the *Sierra Club Bulletin* (vol. v. p. 258) quotes different readings taken in winter, and advises arranging for the general taking of such observations. The weather observer at Independence sought to install a maximum and minimum thermometer on the top of Mt. Whitney in October, 1904, but, on account of a snow-storm, failed to reach the summit.

On December 31, 1904, Dr. Hallock, head of the Department of Physics at Columbia University, N. Y., placed a maximum and minimum thermometer at the western summit of Slide mountain, N. Y. (alt. 4205 ft.). The point chosen for exposing the instrument was slightly below the top, partially sheltered by trees. Although the winter of 1904-05 was fairly severe, in the spring the minimum was found to have been -16° F. During the winter of 1905-06 the same instrument recorded a minimum temperature of only 0° F.

At higher elevations the cold is naturally greater. Yet on Mt. Lyell, Cal. (alt. 13,040 ft.), the minimum for 1897-98 was $-25^{\circ}.3$ C. ($-13^{\circ}.5$ F.), and for the next winter, 1898-99, $-27^{\circ}.5$ C. ($-17^{\circ}.5$). The first observers who wintered on Mount Washington, in 1870-71, noted once a reading as low as -40° F., and a mean for twenty-four hours of -35° F.

These records however do not militate against winter ascents. In winter the weather is less variable. The peril to mountaineers is less in low temperatures than in sudden changes and unheralded storms. Both of these conditions are more frequent in summer, and even in tropical latitudes.

The installation of a minimum thermometer, at the apex of his climb, should be one of the duties which a mountaineer owes to his brethren.

FROM letters received recently from Dr. William Hunter Workman and Mrs. Fanny Bullock Workman, it appears that they wintered in

Bangalore, South India, engaged chiefly on their forthcoming book. This is to give the details of the mountaineering trip of 1903 in which record altitudes were attained. In the interval since these climbs, they have published their studies of the Temples of India, which has occasioned delay, so that the new mountaineering volume will probably appear some three years after the ascents it records.

They appear to be still in uncertainty whether again to venture into the upper ice world of the Himalayas, or to rest content with past successes.

Report of the Recording Secretary for 1905.

ON January 1, 1906, the total membership of the Club was 1560, a decrease of 3 from the number reported one year ago.

The Honorary Members numbered 19, Ferdinand von Richthofen having deceased and General Adolphus W. Greely and Sir James Hector having been added; and the Corresponding Members 52, Henri de Saussure and Alpheus S. Packard having deceased, and General Hazard Stevens, Colonel Thomas Wentworth Higginson, Dr. W. H. Workman, and Professor Albrecht Penck having been added. There were 228 Life Members and 1261 Annual Members, making 1489 members of the Corporation. During the year 10 members of the Corporation deceased, 84 resigned, and 28 were dropped for non-payment of dues. The new members numbered 115, about 50 less than the average for the past eight years, doubtless the result of the increase in the admission fee.

There were held during the year nine regular, nine special, and one field meeting, the average attendance being 270.

There were presented at these meetings, — besides official reports and ten short papers at the Excursion Meeting in December, — 22 papers, 18 of which were illustrated with the lantern. Five papers were devoted to the White Mountains; five to Canada; three to the Pacific Coast and Alaska; one each to Hawaii, the West Indies, Bolivia, Norway, and Switzerland; and three were of a general character.

The Field Meeting was held at the Deer Park Hotel, North Woodstock, N. H., July 1–10. Accounts of this meeting and

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of the excursions of the year will be found in the report of the Excursion Committee.

The Snow-shoe Section reëlected its officers, Mr. W. R. Davis, Chairman, and Mrs. Albion D. Wilde, Secretary-Treasurer. The membership is now 198. Two trips were made, one to Gorham, N. H., in January, and one to Jackson in February.

The annual social meeting was held at Hotel Vendome on Friday evening, February 10, with an attendance of 267. A balance of \$15.35 was paid into the treasury.

One number of APPALACHIA was published, Volume XL, No. 1, in June.

Reference is made to the reports of the Trustees of Real Estate, the Councillors, and various committees, for work accomplished in the different departments.

Respectfully submitted,

ROSEWELL B. LAWRENCE,

Recording Secretary.

Report of Corresponding Secretary and Librarian for 1905.

THERE is but little to report on the part of the Corresponding Secretary and Librarian the past year. Circumstances have prevented the work of rearranging the Library from being carried through to completion. The lack of adequate shelf room has made itself felt, however, and the Council in the spring appointed a Library Committee to deal with the problem. The amendment of the By-Laws by separating the care of the Library and the official correspondence of the Club will relieve my successor of a combination of duties which in some ways had little in common, and which demanded of the person filling the office more time than the average man can take from business for even so pleasant and profitable a task as that of this office. The work of the Library has so increased of late years that the change is a much needed one. The duties of the new Corresponding Secretary will be comparatively light, and I bespeak for my successor the same cordial interest which has been accorded me.

Exchanges have been received as heretofore. A list of the other accessions is appended. Respectfully submitted,

FREDERIC GILBERT BAUER,
Corresponding Secretary and Librarian.

Accessions to Library in 1905 other than by Exchange.

[Names of Members in Italica.]

A Walk round Mont Blanc.	Rev. Francis Trench.	Gift of <i>H. Putnam</i> .
Geodesy.	J. Howard Gore.	" " <i>J. Ritchie, Jr.</i>
Journals of Excursions in the Alps.	Wm. Brockedon.	" " <i>J. Ritchie, Jr.</i>
Mit Blitzlicht und Buchse.	C. B. Schillings.	Purchased.
The Canadian Rockies.	<i>Arthur O. Wheeler.</i>	Gift of Author.
Three Months in Europe.	Emma F. Thomas.	" " <i>J. Ritchie, Jr.</i>
The Heart of the White Mountains.	Sam'l Adams Drake.	Purchased.
Travel in the United States during 1849-50.	Lady Emmeline Stuart Wortley.	Gift of <i>J. Ritchie, Jr.</i>

The donation of Guide Books credited last year to Charles Scribner's Sons through an inadvertence, was the gift of their publisher, Karl Bædeker.

Treasurer's Report for 1905.

The receipts and payments for the year were as follows : —

RECEIPTS.

Cash on hand, January 1, 1905 :	
" for Mount Washington Refuge Fund	\$92.06
" " prepayment of dues and subscriptions	26.00
" unappropriated	496.27
	<hr/> \$614.33
Permanent Fund :	
Life memberships, 3 at \$50	150.00
Mount Washington Refuge Fund :	
Two donations received	4.00
Reserve Fund :	
From Committee on Field Meetings and Excursions	100.00
Annual dues : 1115 members at \$4	\$4460.00
Admissions : 115 new members at \$8	920.00
Rooms :	
From societies and clubs	\$19.33
For rental of keys	8.00
	<hr/> 27.33

APPALACHIA and other publications :

Sales of Walks and Rides about Boston . . .	\$63.25	
“ “ APPALACHIA, maps, etc.	76.05	
Advertising in APPALACHIA	222.20	
Received from American Alpine Club . . .	75.00	
	<hr/>	436.50

Department of Topography :

Sale of blue print maps of Northern Slopes . . .	1.25	
Library : sale of duplicates	23.55	
Annual reception : balance of profit	15.35	

Interest :

On Permanent Fund for 1905	\$345.77	
“ Reserve Fund “ “	87.11	
“ Treasurer's bank account	50.42	
	<hr/>	483.30

Total unappropriated receipts for 1905 . . .	<hr/>	6367.28
		<hr/>
		\$7235.61

PAYMENTS.

Trustees of the Permanent Fund :

Life memberships, 3 at \$50		\$150.00
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Trustees of the Reserve Fund :

From Committee on Field Meetings and Excursions	\$100.00	
“ general account	300.00	
	<hr/>	400.00

Real estate :

Repairing interior of house on Rhododendron Reservation	\$452.33	
Taxes on Rhododendron Reservation . . .	30.06	
Protection of Carlisle Pines Reservation from fire	49.00	
Travelling and other expenses, including Lead Mine Bridge litigation, Madison Hut estimates, notices, etc.	81.43	
Improvement cutting on Three Mile Island,	50.00	
	<hr/>	662.82

Rooms :

Rent and care of Club Rooms for 1905 . . .	\$1500.00	
Lighting	33.61	
Bookcases	53.00	
Insurance for five years	22.05	
Fittings, supplies, and sundries	60.82	
Storage warehouse	24.20	
	<hr/>	1693.68

APPALACHIA and other publications :		
Vol. XI., No. 1, and part of Vol. X., No. 4,	\$892.28	
Delivery of APPALACHIA and Sierra Club		
Bulletin	416.80	
Reprints	54.33	
Business and advertising agents	134.32	
Index of first ten volumes of APPALACHIA,		
part payment	75.00	
Walks and Rides about Boston :		
Binding 100 copies	\$17.00	
E. M. Bacon, royalty	7.24	
	24.24	
		1596.97
Library :		
Books and catalogue cards	\$32.45	
Binding	29.68	
		62.13
Stationery, printing, and postage :		
Register, 2200 copies	\$269.68	
General expenses	581.87	
		851.55
Expense of meetings :		
Rent of halls	\$88.95	
General expenses	252.16	
		341.11
Department of Topography :		
Guide to view from Mount Chocorua and Blue Hill		37.00
Department of Exploration and Forestry :		
Chiefly forestry work on Rhododendron Reservation		47.15
Department of Art :		
Framing and binding		9.50
Department of Improvements :		
Work on Club paths and camps, and expenses . .		231.51
Clerical services :		
Employment of assistant for clerical work . . .		420.00
Total expenses		5953.42
Cash on hand December 31, 1905 :		
Mount Washington Refuge Fund	\$96.06	
Prepayments and cash appropriated	57.30	
Cash unappropriated	578.83	
		732.19
		\$7235.61

Respectfully submitted,
RUFUS A. BULLOCK,
Treasurer.

Report of Trustees of the Permanent and Reserve Funds
for the Year 1905.

PERMANENT FUND.—PRINCIPAL.

1905.			
Jan. 1.	Amount on hand from last report	\$9918.95	
	Amounts received from R. A. Bullock, Treas., for Life Memberships :—		
23.	Miss Annie S. Penfield	\$50.00	
"	Miss Lily Wells	50.00	
Dec. 26.	Miss Lila Capen Fisher	50.00	150.00
			<hr/>
	Total Principal on hand Jan. 1, 1906	\$10068.95	

PERMANENT FUND.—INTEREST.

1906.			
Jan. 1.	Suffolk Savings Bank : 12 months, to Oct., 1905	\$42.41	
"	Medford Savings Bank : 12 months, to Nov., 1905	17.64	
"	Lexington Savings Bank : 12 months, to Oct., 1905	41.84	
"	Eliot Five Cents Savings Bank : 12 months, to Oct., 1905	38.12	
"	Franklin Savings Bank : 12 months, to Aug., 1905	35.38	
"	Boston Five Cents Savings Bank : 12 months, to Oct., 1905	36.40	
"	Institution for Savings, Roxbury : 12 months, to Oct., 1905	35.30	
"	Canton Institution for Savings : 12 months, to Oct., 1905	41.71	
"	Warren Institution for Savings : 12 months, to Oct., 1905	25.91	
"	North End Savings Bank : 12 months, to July, 1905	31.06	
		<hr/>	
		\$345.77	
		<hr/>	

1905.			
Nov. 16.	Paid R. A. Bullock, Treas., as per vote of Council, June 26, accrued interest during year	\$345.77	
		<hr/>	

TRUSTEES OF PERMANENT AND RESERVE FUNDS. 157

PERMANENT FUND.

Dec. 31. Total Principal on hand	\$10068.95
Deposited as follows : —	
Suffolk Savings Bank, Book No. 100,753	\$1243.71
Medford Savings Bank, Book No. 14,915	517.64
Lexington Savings Bank, Book No. 1921	1227.45
Eliot Savings Bank, Book No. 32,233	858.32
Franklin Savings Bank, Book No. 70,143	1038.35
Boston Five Cents Savings Bank, Book No. 425,754	1067.52
Institution for Savings, Roxbury, Book No. 80,803	1000.00
Canton Institution for Savings, Book No. 9015	1223.83
Warren Institution for Savings, Book No. 76,456	854.51
North End Savings Bank, Book No. 26,345	1037.62
	<u>\$10068.95</u>

RESERVE FUND. — PRINCIPAL.

1905.

Jan. 1. Amount on hand from last report	\$2468.80
Dec. 27-28. Received from R. A. Bullock, Treas.	400.00
	<u>\$2868.80</u>
Total Reserve Fund on hand Jan. 1, 1906	\$2868.80

RESERVE FUND. — INTEREST.

Dec. 31. Boston Five Cents Savings Bank : 12 months, to Oct., 1905	\$53.63
Canton Institution for Savings : 12 months, to Oct., 1905	8.19
Eliot Five Cents Savings Bank : 12 months, to Oct., 1905	25.29
	<u>\$87.11</u>
Interest accrued during year	<u>\$87.11</u>
Nov. 16. Paid R. A. Bullock, Treas., as per vote of Council, June 26, accrued interest during year	\$87.11
	<u>\$2868.80</u>
Total Reserve Fund on hand Jan. 1, 1906	\$2868.80
Deposited as follows : —	
Boston Five Cents Savings Bank, Book No. 229,173	\$1519.72
Canton Institution for Savings, Book No. 10,793	240.74
Eliot Five Cents Savings Bank, Book No. 46,187	1108.34
	<u>\$2868.80</u>

1906.

Jan. 1. Total Permanent Fund	\$10068.95
" Reserve Fund	2868.80
" in hands of Trustees	————— \$12937.75

ISAAC Y. CHUBBUCK,	} Trustees of the	
REST F. CURTIS,		Permanent and
CHARLES H. FRENCH,		Reserve Funds.

The Committee appointed by the President to examine the accounts of the Appalachian Mountain Club—which Committee consisted of Messrs. George M. Weed, Edward W. Howe, and George N. Whipple—duly reported that they had examined the accounts of the Treasurer, the Trustees of the Permanent and Reserve Funds and the Trustees of Real Estate, and that they believed the same to be correct.

Report of the Trustees of Real Estate for 1905.

THE Trustees of Real Estate respectfully report for the year 1905:

The beauty of the Lead Mine Bridge Reservation has been impaired, and more serious injury is threatened, from the work of the Berlin Electric Light Company in building a dam across the river to the west of the bridge. A camp for its workmen was put at first upon the Reservation; and upon notice from the Trustees it was moved therefrom. The trees and the shubbery upon the river bank have been cut away, and a road has been built giving access to the dam. It is claimed that the Company has a right to do these things, because of the reservations in the deeds of the water power, which now belongs to it. The matter, at present, is in litigation, and the interests of the Club will be protected. The boundary line between the Reservation and the Charles Endicott Estate has been settled, and a proper record made in the Registry of Deeds. The income from this Reservation for hay and pasturage has been \$36.75.

The lumbering upon the slopes of the northern peaks of the Presidential Range has continued; and the Club is under especial obligation to the Berlin Mills Company for its great care that the least possible injury should be done to our paths. Some efforts have been made to acquire these woods, in anticipation of favorable action either by the State or by the nation,

for the establishment of a large reservation; but so far without success. There also have been negotiations with the Bartlett Lumber Company for the protection of Iron Mountain, and other mountains in Jackson or upon its borders, with no definite result as yet. The lumbering operations in the vicinity of Glen Ellis Falls and Crystal Cascade will not go so far this year as to do any injury in that immediate vicinity; there is danger, however, that in another year the operations will extend over this territory. If possible, small reservations should be established to protect the beauty of these falls.

The Trustees in their previous reports have called attention to the condition of the Madison Hut, and have expressed their conviction that this condition required serious attention. Early this year the Councillor of Improvements was requested by the Trustees to make a careful examination of its use, and his report to the Trustees, hereto annexed, shows that he believes with them that an heroic remedy is necessary. Accordingly, the Trustees have had a plan made for the enlargement of the Hut so as to provide a separate room for the occupation of women. They have received estimates of the expense, probably \$600, of making these changes, with the expectation that during the summer months a keeper will be in charge of the Hut, and that compensation will be asked for its use. During the remaining months the old portion of the Hut may be used for refuge as heretofore. Several complaints have been made to the Trustees, both by members of the Club and by others, relative to the condition of the refuge house near the Lakes of the Clouds; but, as this house is not upon land in which the Club has any right, it is beyond our jurisdiction.

A path has been made along the ridge of the Joseph Story Fay Reservation in accord with the recommendation of Messrs. Olmsted Brothers, beginning at the entrance near the sawmill and ending at "Notch View Point," so called, where a rustic platform and bench have been built, affording a beautiful view of the Profile Notch. At a little distance from the beginning of the path a rustic ladder has been put against a big boulder, so as to give access to its top, whence there is a fine view of the valley and mountains above Lincoln. A bench has been placed under a large sugar maple, also on this path, from which there

is a beautiful view down the Pemigewasset Valley. From another point in the path there is a fine view of Mt. Moosilauke. From Notch View Point the path is continued down the hill and across Northeast Brook by a rustic bridge, and thence to the highway. It is the expectation of the Trustees to open soon another path along the east side of the Reservation, from the big boulder to the bridge, to be called the Boulder Path. None of the planting recommended by the Messrs. Olmsted Brothers has as yet been done, and probably will not be undertaken until after the completion of the several paths. Some cutting is to be done in the spring, in order to open vistas and for the better protection of the Reservation against fire. The mutilation of the balsam firs, probably by summer boarders, continues, though not to the extent of previous years. The work for the building of a lumber railroad from Johnson towards the west has injured the fence of the Club about the Reservation, and one or two of the trees. For this we have received the apology of the proprietor of the railroad, and the repair of the fence, and his assurance that no further damage will be done. We have received requests for the establishment of chalets in this Reservation to be occupied as summer camps ; but it has not seemed to the Trustees a prudent thing for them to permit, as the Reservation should be for the benefit of the whole community and not for personal occupation.

At the request of the Trustees, Mr. John Ritchie, Jr., when leading the walking party over Mt. Kearsarge, placed September 11, 1905, upon the building at the summit, signs claiming it as the property of the Club. This is done each year in order to protect the rights of the Club. There has been some danger of logging upon Mt. Kearsarge ; but probably it will not begin this winter, as the owners of the woods have assured the Trustees of ample notice when anything is about to be done. A trail upon this mountain from Chatham should sometime be made, as the Club owns a right of way therefrom ; but it is not best to undertake this until after the logging operations have ended.

The Trustees have been unable to find any tenant for the house upon the Farrar Reservation, and, as the house is leaking, it does not seem that the Club treasury should be called upon

for any additional expense in the way of repairs. Some one has put upon the house a notice relative to its occupation, claiming it to be by order of a committee of the Club. This notice was not authorized by the Trustees; and is an element of danger, as possibly implying an approval by the Club of its occupancy in its present condition. It may be the best policy to demolish the house.

Considerable work has been done this year upon the Carlisle Pines Reservation, fire-lines having been made entirely around it and some thinning done, at an expense of \$47. It is the hope of the Trustees to continue this forestry work, so as to give more ample protection against fire, and also so as to give opportunity for the young pines to grow. The Trustees also have removed obstructions which were placed across the way into the Reservation from the north, intending to maintain the Club's rights of passage.

The interior of the cottage upon the Rhododendron Reservation has been put in order, with the exception of the cellar and of the attic; and has been furnished with cooking stove and utensils, table ware, tables, chairs, cots, springs, mattresses, blankets, pillows, and lamps, and is in an acceptable condition for occupancy during the summer months. The cost of these repairs and of the supplies and for taxes and additional insurance has been \$482.31. The cottage has been occupied between five and six weeks, and the returns therefrom are \$40. All who have been tenants of the cottage have been enthusiastic in praise of the situation; and the use of it unquestionably will increase every year. A party of ten can be accommodated in the cottage comfortably; and the charge therefor is ten dollars for the first week and five dollars for each succeeding week. As the cottage is not adapted now for winter occupation the Trustees have been obliged to decline applications therefor. They hope, however, to make such use possible next winter. The further changes recommended by Mr. Stephens are to remove the well sweep, make a curb of field stone laid in cement mortar, add a simple porch at the front entrance, put four dormers on the roof so as to make possible the building of four good rooms in the attic, whitewash the walls and ceiling of the cellar, remove the upper barn, repair the lower barn, repair the paddock wall,

provide it with a gate, enclose the spring, and repair its canopy. There have been several negotiations for the commercial use of the spring water,—so far, however, without definite result. A fire in the adjoining woods threatened the Reservation in the spring, but, fortunately, was extinguished without serious injury, though some of the trees upon the Reservation were burned. So soon as possible the Trustees intend to continue the forestry work, so as to make the protection against fire more efficient.

The Camp upon Three Mile Island remains in charge of the Committee appointed by the Trustees.

In closing, the Trustees want once more to call the attention of those interested in the preservation of the forests and in the maintenance of the Reservations to the urgent need of money, and they hope that contributions may be received which can be used for this purpose.

For the Trustees, .

HARVEY N. SHEPARD,

Chairman.

REPORT ON THREE MILE ISLAND.

To the Trustees of Real Estate:—

The Camp was open January 28 to February 4; May 20 to 30; July 8 to September 8; and October 20 to 30. During the summer season those attending numbered 187,—nine more than in 1904. The largest number at one time was 76, including the help. The total number of different persons visiting the Camp during the year was 220,—nine less than in 1904. It seems therefore as if the Camp had attained its growth. It is desirable, however, that the attendance in July should be larger, since it is necessary to engage the help and the launch for the season, and the receipts do not equal the expenses until a reasonable number is reached. It is unfortunate also that more members do not visit the Camp in October. The October season did not pay for itself, except indirectly in the forestry work accomplished.

When the Camp was closed in September, the boat-house was so full it became necessary to leave three boats outside; on the floor were eight boats and canoes where there was supposed to be room for four, and one canoe was slung to the rafters. It was decided, therefore, that the time had come to enlarge the boat-house, and the work was done during the fall, the building being doubled in size and a second floor provided in the new part for the help in summer and for

storage of tents, cots, etc., during the rest of the year. The cost of the enlargement was about \$430, which amount was nearly covered by the contributions for improvements made by members during the year, namely, \$415.

The insurance policy on the tower having expired, a new one for \$1000 was obtained. This covers the entire cost, including the tank, lockers, and shingling, added since the first policy was written. An addition of \$400 was also made to the boat-house insurance, and the total insurance on all the buildings is now \$5600.

The steam launch "Burnell," licensed to carry seventy-five persons, was hired during the summer season. It paid for itself only three days of the twenty-three in July, but the deficit was made up in August.

A large float for the storage of boats and canoes during the summer was built in the spring; the cost of the materials amounted to \$40, the labor being performed by our regular help.

In October careful and thorough forestry work was done over a large section of the Island, extending from the ridge path to the east shore and from the tower to the north end, and over a smaller section between the ridge path and the rhododendron swamp. Dead and dying trees were cut, and also inferior ones which were choking the growth of evergreens and hard-woods. All débris was carefully burned, thus lessening materially danger from fire. The payments for labor amounted to \$105. Towards this expense the Council appropriated \$50, and three members contributed \$10 each. The remaining \$25, together with the cost of sledding the cord-wood to camp, may reasonably be charged to the Camp, since the Camp gets the wood. Thanks are due several Club members for assistance in this forestry work. It may be added here that the Club has never made an appropriation for the Island except for forestry. Another appropriation of \$50 to this work the coming year would enable the remainder of the Island to be covered.

The cost of running the Camp last summer was greater than in 1904, — partly because of increased cost of provisions, but chiefly on account of more money being spent on the table. Only \$200 was available at the close of the year to pay upon the debt, which is now \$899.84. Against this may be placed a small working balance in the treasury, retained to meet winter and spring expenses. The net debt is about \$840.

The Committee had hoped to pay the debt in one more year, and then to use the annual surplus in hiring a manager to run the Camp. Such a plan now seems financially impossible, and the future of the Camp, therefore, is more uncertain than ever. Perhaps other members can be found to give their time and energy to the work of

management; perhaps some one can be found to run the Camp for what he can make out of it; perhaps the Camp should be run more economically. The present management feels constrained, however, to continue until the debt is cancelled.

Respectfully submitted,

ROSEWELL B. LAWRENCE,

Manager.

Reports of the Councillors for the Autumn of 1905.

Natural History.

BY HOLLIS WEBSTER.

IN regard to the material possessions of the Club of which the oversight falls to his care, the Councillor of Natural History begs to report a *status quo*; the herbarium is in the same condition in which it was twelve months ago. And it is in regard to the herbarium that he has to offer the only suggestion that seems to him at the moment to have value, namely: that, in view of the growing demand for space by the needs of the library, it would be well for the Club seriously to consider the advisability of maintaining at the rooms any collections whatever of natural objects. A collection of plants is, perhaps, a natural, but purely an incidental accretion to the property of the Club. But, aside from sentimental reasons, I can see no good cause for maintaining it. To be of practical value such a collection should be limited to a definite group or area, should contain specimens individually of value for record or for demonstration, and should be so disposed (and this implies the need of some space) as to be readily accessible. Our collection — and this is said with all due respect for those who have taken pleasure and trouble in making it — is of little botanical value. It is not among the recognized herbaria of New England. And it is not, it seems to me, a function of the Club to make it so. Moreover, it is apparently of little use to the members of our Club; at least, our members make practically no use of it. Why then keep it?

Parts of it, those that have value, can be placed where they will be appreciated and their usefulness maintained. The rest of it — in fact, from a practical point of view, the whole of it —

is a possession which takes up valuable space without contributing to the advancement of the purposes of this Club.

I wish, therefore, to suggest to my successor the problem of disposing of the herbarium, and would propose calling a meeting of those interested in this matter, to learn whether there is still a justifiable desire on the part of the Club to maintain an herbarium.

Reports of the Councillors for the Autumn of 1905.

Topography.

BY FREDERIC V. FULLER.

IN presenting his third and final report, the Councillor regrets being unable to point to any work of moment or significance as having been instigated or accomplished during his régime, but faithful attendance upon Council and committee meetings must stand as his chief official virtue.

As in 1904, all of the strictly topographic work has been done by Mr. E. G. Chamberlain, whose report is herewith presented:—

MR. F. V. FULLER, Councillor of Topography.

DEAR SIR, — In reply to your request I submit this statement for 1905. I have made pacing surveys and constructed maps of thirty-five of the outings, and have distributed nearly a thousand blue print copies of these maps. As before explained, one excuse for this work is, that objects discovered by the Club are correctly located, and so may be added to the published maps. The Amesbury outing affords a good example. After visiting Powder House Hill we crossed a deep valley and then ascended a higher hill, which diligent search shows has never appeared on any map. Even the recent state topographic map omits it. So I called it "Lost Hill" on my outing map. I was glad to visit it, for it had puzzled me much. I had correctly located it in my Powow Hill work and shown it on the panorama. Let me add that Powow Hill in Amesbury, the northeastern watch tower of Massachusetts, is the only point in this state, except Wachusett, from which I have ever seen Mt. Washington. It appears over the right flank of Copple Crown, and is $98\frac{1}{2}$ miles distant.

I have made a panorama from the Metropolitan Gate House in Weston, now becoming a noted lookout point.

In October I worked two days on Kearsarge Mountain in Warner, N. H., trying to complete the panorama on which I have done occasional work since 1884. I refer to historic old Kearsarge of southern New Hampshire, the famous landmark of the New England soldiers of the French and Indian Wars. A rapid and steady stream of cold air from Alaska, continuous for several days, hindered the work, and finally carried away the sights from my alidade. So the work is still incomplete, though I have made blue prints uniform with the smaller panoramas of previous years, and of the path up the north side which I paced out.

In September I was commissioned by our fellow member, Mr. H. C. Francis, to make for him a topographic map of his island (Big Beaver) in Lake Winnepesaukee. This map has proved interesting to those members who have visited Big Beaver from Three Mile Island.

Last year I referred to the Blue Hill panorama on which I had worked for many years. As it has been copied very carelessly by several parties who have published it, I had my original drawing lithographed and copies placed in covers for the pocket in season for the Blue Hill outing in May.

In the fall I received from you a request to undertake a panorama from Mt. Chocorua. I at once began compiling such data as could be found in regard to the peak and its view, computing bearings of points likely to be visible, and constructing a conjectural view to assist in identifying at the summit. Before I could get away, I learned the hotel on the mountain had been closed for the season.

Respectfully,

E. G. CHAMBERLAIN.

AUBURNDALE, November 30, 1905.

One thousand copies of Mr. Chamberlain's "Guide to the View from Great Blue Hill" were printed, and arrangements made for their distribution among Club members.

Mt. Chocorua is so accessible, ascended so frequently, and one might say so loved by climbers, that it is time we had a correct guide to the superb view from its summit, and I trust my successor will approve of this project and arrange to have Mr. Chamberlain go forward with this work and issue a liberal number of these guides for distribution among Chocorua's admirers.

From Mr. John Woodbury, Secretary of the Metropolitan Park Commission, the Councillor received one hundred copies each of the revised maps of Blue Hills and Middlesex Fells

Reservations. As the Fells Reservation has no street-car line running through it, an effort was made to show its accessibility by emphasizing upon the map the various avenues of approach from the railroad stations from which the Fells can be most easily reached. Copies of these maps may still be obtained from the department through the custodian at the rooms.

Reports of the Councillors for the Autumn of 1905.

Art.

BY MARTHA A. VINAL.

ALTHOUGH there have been no accessions of pictures to the art collection of the Club the past year, your Councillor has to report that a number have been promised for the coming year. The water-color of Monte Rosa and the Gorner Glacier presented two years ago by Miss Agnes Leavitt has been framed, and now hangs in the library.

We were fortunate in securing for exhibition at the Annual Reception of the Club in February large paintings of Albert Cañon, the Asulkan and Dawson Glaciers, Mt. Stephen and Mt. Sir Donald, kindly loaned by the Canadian Pacific Railroad; also photographic views of Middlesex Fells, Burlington (Mass.), and on the Abbajona River at Winchester, taken by Mr. H. C. Robinson; California scenes by Miss Margaret Buck, taken during the excursion into the Yosemite Valley the summer before; painting of Mt. Grace and a large number of photographs of eastern countries from Mr. John Ritchie, Jr.; photographs of New England scenery, including a framed picture of the Carlisle Pines, by Mr. A. H. French; an enlargement of Huntington's Ravine by Mr. C. H. Sanders; and enlargements of Mts. Hungabee, Deltaform, and Biddle from Mt. Stephen, by Professor H. C. Parker. By request, a number of the Sella pictures formed part of the collection. Several albums containing pictures taken during the year were also enjoyed.

The pictures exhibited at the Club Rooms this year seem to have been of unusual interest. The first, those on the walls at the reception of President and Mrs. Fay in May, were noteworthy in point of originality, and consisted of hand-colored

proofs of woodcuts designed and cut on the block by the artists, Misses Annie I. Crawford and Emma Kaan, of Buffalo, N. Y. They also showed colored and uncolored photographic reproductions of original paintings. These were on view for ten days, and attracted much favorable attention.

We are always glad to have Mr. Chaloner's pictures with us, and those which were sent for the Room Committee's "At Home" on the twelfth of December proved no exception. They were painted in the several countries which Mr. Chaloner visited last summer — scenes from England and Italy perhaps predominating — and were of great interest to the numbers of Club Members and their friends who visited the Club Rooms during the ten days that the exhibition lasted.

The various parties of the year have held their usual reunions, and in nearly every case the pictures shown have been left at the Rooms for several days, that all who wished might see them. Notable among these might be mentioned the photographs taken by members of the Sierra Club during last summer's outing at Mt. Rainier, in which several members of our own Club joined, to whom the pictures were of more than passing interest.

The smaller Sella Loan Collection has in the past year been sent to Mr. Burke, the head of the Department of Geography at the Boston Normal School, where it remained for two or three weeks; and to Mr. P. B. Field, for exhibition before the Science Club of Milton Academy, which greatly appreciated the privilege.

Furthermore, Dr. Newell of the Department of Chemistry in Boston University, with a class of twenty-five students, visited the Club Rooms for the purpose of studying the Sella pictures, especially those which give an idea of the formation of glaciers.

Reports of the Councillors for the Autumn of 1905.

Exploration and Forestry.

BY HARLAN P. KELSEY.

So far as the Councillor is aware, no new mountain ascents worthy of record have been made by members of the Club, either in America or elsewhere.

The property of the Club in charge of this Department remains the same as last year, there being no losses or additions.

The successful exhibitions of the previous year were not repeated, as it seemed best to wait over a season. It is hoped, however, to have in 1906 two exhibitions — one of summer camping and tramping outfits, and one of winter camping and snow-shoeing outfits and paraphernalia. Suggestions from those interested will be gladly received by the Department.

The most active work of the Department may this year be classed under Forestry. All of the Club's largest reservations have been visited during the year, — the Carlisle and Fitzwilliam Reservations several times each, — and as much accomplished towards adequate fire protection as limited funds will allow. A fire belt averaging twenty feet in width was made around the boundary line of the Carlisle Pines Reservation, and arrangements have been about completed to place the entire reservation during the winter in practically a fire-proof condition. Much of the smaller underwood will be thinned out, so that the splendid growth of young pines may grow more vigorously. Hundreds are now being choked and stunted, but, after the first cutting, it will take but a small amount of oversight to properly care for and protect them. The aim should be to properly care for the mature trees and foster the growth of the younger generations of pines, so that the Reservation may yearly grow in beauty, with the promise of permanence.

The forestry work on Three Mile Island was continued, and at no distant date it is hoped the first thinning and clean-up of the entire island will be completed. Thereafter it will be each season only a matter of attention to dead limbs and very slight thinning. A few seasons' growth will show a vast difference in the aspect of the island, as the trees broaden out and lose their present stackpole appearance, caused by overcrowding and consequent loss of side branches.

The persistent labors of the Department to secure Glen Ellis Falls and Crystal Cascades as permanent reservations, thus saving their beauty for all generations, have as yet been without final results. Through the courtesy of the International Paper Company, however, the fine forests in the immediate vicinity have been carefully protected so far, and no labor will be spared to

eventually place these beautiful waterfalls in some trust where their safety for the future will be assured.

The movement for a National or State forest reservation in the White Mountains, which, if successful, would save the forests of that region, should, especially at this time, receive the earnest and active consideration of every member of this Club. A new bill for the establishment of such a reservation will be presented to Congress during the present session, and if each individual member of the Club who favors a federal reservation in the White Mountains would write his or her senators and representatives in Congress urging favorable action, it might be the weight that would turn the scales favorably.

Let this be not a wasted appeal, for it requires but a small sacrifice of time to each Club member, and the results may be momentous for the future of our New England forests.

Exploration at the present time is not a very active function of this Department, but forestry is; and with a hoped-for increase in the funds available for his work, the Councillor may expect to report much greater results another year. Without such funds the Department will be entirely unable to properly care for the Club's legitimate and growing interests in this direction.

Reports of the Councillors for the Autumn of 1905.

Improvements.

BY HARLAND A. PERKINS.

THE work of the Councillor this year has been to continue, so far as possible, the policies and good work of his predecessors, particularly in keeping in passable condition those paths already accepted by the Club. It did not seem possible, considering the limits of the appropriation, that much new work could be accomplished or many new paths opened, the endeavor being in one or two cases to supply missing links or short extensions, which would add to the attractiveness of existing paths at but slight expense. The sum of \$231 has been expended during the year in the work of the department, this sum including payments for path signs for the use the coming season.

Greater coöperation between members and the Department seems desirable, in order that the Councillor may be kept informed of the condition of the paths, he in turn passing on the information for the benefit of others.

A year in the office of Councillor, with its four trips of inspection covering more than half of the pathage of the Club, gives a more comprehensive view of the work and of the needs of the various localities, and has also shown several modest extensions to present lines, which will add greatly to their availability and interest and to the value of the system.

The two greatest handicaps in the work of the Department have been the shortness of the working season and the lack of woodsmen of known value in the various sections covered by the Club's paths; but a year's acquaintance and trial has remedied this, all of the men in our employ having done faithful and efficient work.

Lumbering operations on the northerly slopes of Mt. Adams during the winter covered parts of the Air Line several feet with slash; but the Berlin Mills Company did its utmost to minimize the damage, by keeping a man in the camps to guard and clear out the paths. The Company this winter is logging the upper slopes of Durand Ridge, and from personal observation by the Councillor is still, through its agents, Messrs. Clarence E. Buzzell and John H. Bootman of Randolph, marking and clearing the paths, which action should bring the commendation of Club members and other trampers.

Rev. Raymond M. Dow Adams has coöperated heartily with the Councillor in the care of the cylinders and rolls. An attempt was made late in the year to place a cylinder on Mt. Hale in the Twin Group, without success, but a renewal of the effort will take place in the early spring with hopes for better results. The cylinder on Mt. Monroe was found to be in a leaking condition, and was replaced late in the summer.

It is with a feeling of relief that the Councillor learns of the movement to install a keeper at Madison Hut; for the care of this shelter, delegated to the Department by the Trustees of Real Estate, has been the one unpleasant task among the many delightful ones in Club work.

The following is the condition of the various paths and camps:

Air Line (Ravine House to Mt. Adams) and Lowe's Path (Lowe's to Mt. Adams) have been cleared of an accumulation of lumbering slash by Thaddeus Lowe under the direction of Dr. Nowell, the former path being in fair, and the latter in excellent condition. The cost of clearing Lowe's path was \$30, of which \$20 was contributed locally and the balance paid by the Club.

Pond of Safety and Ice Gulch paths, on account of a lack of funds, have not had any work done on them, and are reported needing attention.

Jackson-Carter Notch Trail, also Glen-Carter Notch Trail, have been cleared and carefully signed by George Howard, and are in excellent condition, as is also the Wildcat branch. A good road now replaces the Club path from the Glen Road to a point two miles up Nineteen Mile Brook, rendering the Notch and camp particularly easy of access.

The Carter-Moriah Path, which was cleared by Chester Heath of Gorham under the direction of the Councillor, is in good shape and easily followed.

The Tuckerman's Ravine Path from Glen Road, and the Raymond Path from Carriage Road to Hermit Lake, were also cut out by Howard and Jonathan Davis, and are in good condition. A ground fire late in the season destroyed much of the picturesqueness of the former trail, extending from Glen Road to a point a half mile above Crystal Cascade, killing fortunately only the small growth.

The Twin Mt. Trail from Little River to the North Fork of Pemigewasset is in better shape than for years, owing to the work of W. F. Carleton of Jackson, and can now be easily followed its entire length. The recently discovered spring on North Twin adds much to the pleasure of this most interesting of paths.

The Franconia Ridge Path from Little Haystack to Liberty is in good shape, but the trail down to Flume House has had no attention and is in poor condition. The new extension from Liberty over Flume and Osceo to Henry's Railway is fairly well marked, and adds an interesting link to this grand ridge trail. This work was done for the Club by Professor Harrington and R. C. Jackman of the North Woodstock Improvement Association.

The Moat Mountain Path from Albany Road over the summits to North Moat has been cleared by O. S. Smith of Passaconaway; the balance down to Diana's Baths has had no attention, but was reported in fair condition by the Walking Party. The end of the trail on the Swift River Road, being somewhat blind, has been marked with a sign-board.

Mt. Carrigain Path has had no attention, but is reported good. Mt. Willey Path has had no work done on it, and it is proposed the coming spring to relocate the lower end, starting from Willey Brook Station instead of following up Kedron Brook. A possible projection of this path down to the forks of Pemigewasset is contemplated, there to make connection with the Twin Path and the proposed trail through Carrigain Notch.

The Swift River Trail from Passaconaway to Henry's Railway has been cleared by Smith, and is reported in good shape, as are also the Institute Trail to Waterville, the Bolles Trail and the Sturgis Pray Trail up Chocorua.

The Councillor has been unable to get a report on the Passaconaway Loop, on which work was authorized; so he concludes it is in passable condition.

As a feeder for the Swift River trunk line, the Bear Mt. Notch Trail from Bartlett to the Albany Intervale, a distance of six miles, has been opened and signed, though not yet accepted by the Club. This path, on leaving the westerly end of the village of Bartlett, follows very closely the line of the old lumber railway into the Intervale to a point one half mile above Brewster's cabin, when it leaves the roadbed, soon striking and following down the waters of Douglas Brook to the Swift River, which it crosses at a point near the Annis place, two miles below Shackford's.

A good trail has also been cut out and signed from the summit of Passaconaway to the Slide, thus filling a missing link in the path to Shackford's.

This spring witnessed the opening of the extension of the Franconia Range Trail, spoken of previously, which was projected by the preceding administration. At present it is only a spotted trail, leaving the summit of Liberty, continuing over Flume and Osceo (Whaleback) peaks, and down to Henry's Railway, adding about six miles to the present path. Further

clearing and more signs, as well as additional work on Liberty Camp at the half-way point, are contemplated in the spring.

In addition to the work of the Department previously outlined the following has been accomplished :

A good path was opened in August, through the efforts of Miss Freeman, from the Glen Road to what is commonly known as the Boott Spur Boulder, but which is really on the second spur south, an offshoot from the Rocky Branch Ridge, overlooking Pinkham Notch. This immense stone, perched on the end of the spur, has long been an object of envy to every traveller on the Glen Road, and a visit this summer justified the slight exertion necessary. The trail leaves the road near the height of land above Glen Ellis Falls and is easily followed, the trip to the boulder consuming only an hour.

At Jackson Mr. B. H. Kellogg of Brookline has opened a good clean trail up Doublehead, which the Club would have accepted but for its policy of refusing paths of strictly local interest.

About Chocorua, Mr. T. E. Parker of the Club has continued his good work on the Weetamoo Trail and its extension. This trail, which renders possible a circuit over the summit from Piper's, was put through in 1903. It starts with the Piper Trail, leaving the same at the old sugar house, crossing the brook and skirting its margin to Weetamoo Glen. It then turns directly up the mountain by easy ascent, crosses two glens, becomes more precipitous up to Weetamoo Rock, finally gaining the ledges and soon joining the Hammond Path, which in turn merges with the Liberty Trail. This past summer a cut-off has been constructed from the Hammond Trail to the south peak, coming out a short distance south of the Peak House. A short path has been spotted from the lower ledges on the Brook Path to the Bolles Trail, forming a convenient cut-off.

A cut-off trail, in existence for some years, from Fernald farm on the Carter Notch Road to Dana's or the Cook farm on the Glen Road, has lately been improved and is easily followed.

One new camp has been added during the year, an open log shelter on Liberty. Carter Notch Camp is in good condition, barring the smoke nuisance, which the Councillor believes can be remedied. Imp Camp is in precarious condition and should be rebuilt the coming season. Hermit Lake Camp will last two

or three years, but when rebuilt should be a closed structure like the one which preceded it, on account of the rapidly diminishing supply of fuel. Passaconaway Lodge, with some slight repairs to roof, is good for a number of years yet.

The Mt. Washington Refuge, while proving a source of much irritation to the Summit House management, on account of the number of campers spending the night there who would otherwise patronize the hotel, still has proven a haven of refuge for at least two storm-buffed travellers during the season, who have taken the trouble to express in a monetary way their appreciation of the Club's hospitality.

Several new path projects are at hand for the coming year, — the first the re-opening of the picturesque Castles Path, from the junction of Cascade and Castles brooks to Mt. Jefferson, all lumbering having now ceased which would in any way interfere.

An extension of the Livermore-Camp-Five Trail through Carrigain Notch and down to the forks of the Pemigewasset is proposed, there making connection with the Twin Mt. and the Thoreau Falls trails. It is not proposed to clear this as a path, but open it simply as a well-spotted trail; and it is believed that, acting as a feeder, it would immediately popularize the now somewhat neglected Twin Mt. Trail by giving a continuous line from Livermore to Twin Mt. House, passing through the last large tract of virgin forest in New Hampshire, with one branch to the summit of Carrigain, another to Thoreau Falls and out by the way of Mt. Willey, and a third down the Pemigewasset and out by North Woodstock.

The ascent of Mt. Washington via Huntington's Ravine is becoming so popular as to demand a plainly blazed trail from the Raymond Path to the rock fan at the foot of the main gulley.

The Osgood Trail from Glen House to the summit of Madison, so much travelled in the old days of that hostelry, has been partially cleared by camping parties from the Glen the past two summers, and this spring the Department proposes completing the work of cutting and the putting up of signs, believing that the increased patronage of Madison Hut under the new management will bring this path into favor. A further possi-

bility is the extension of the Franconia Ridge Trail to Garfield and thence down to the railroad.

A proposition, which it is hoped will prove of great value to the tramping fraternity, is a Guide to the Paths and Camps, to be issued in the early summer, giving in condensed form descriptions and all available information as to condition of the Club's trails and camps. The hearty coöperation of Club members familiar with or having notes on this subject is earnestly requested.

In closing, the Councillor wishes to express his grateful appreciation to his predecessors, Messrs. Pray and Field, and to Mr. F. O. Carpenter, for advice and good counsel; to his fellow members of the Council for patience and forbearance; to Dr. William G. Nowell, Dr. Ralph C. Larrabee, Messrs. George D. Newcomb, B. H. Kellogg, L. M. Watson, B. B. Bickford, Charles A. Chandler, W. A. Barron, and L. D. Goulding, as well as to the Waterville Athletic Association and Mrs. S. B. Elliott, to the Wonalancet Outdoor Club and Mrs. K. S. Walden, and to the North Woodstock Improvement Association through R. C. Jackman and Professor Karl P. Harrington, for active assistance in the field.

Report of the Excursion Committee for 1905.

THE Committee on Field Meetings and Excursions organized with George W. Taylor as Chairman, Edward Little Rogers as Secretary, and George D. Newcomb as Treasurer. Mr. Taylor died on the eighth of April. A special meeting of the Committee was held, and resolutions of respect were passed, and were read at the next regular meeting of the Club.

Eight regular meetings were held during the year, and a full attendance was had at seven of them. The Excursions and Outings were managed in the same manner as last year, except that the notices for the "Transcript" and the printer were sent by the Secretary. Nine Excursions, eight all-day and forty Saturday afternoon Outings were planned, and all were taken except four afternoon Outings, which were omitted on account of storms. 2940 persons attended the Outings, an average of 67 each, and the total number of persons carried on all Excursions and Outings during the year was 3634, the largest number in the history of the Club.

During the thirty years now ended there have been 168 Field Meetings, or Excursions of more than one day in length, conducted in the name of the Club; these have been to 84 different places, and 9839 persons participated in them. The all-day or afternoon Outings number 814, attended by 34,108

persons. Nearly 1000 excursions and outings, attended by 44,000 persons, who have travelled upwards of 75,000 miles by conveyances, and have tramped more than 20,000 miles on foot, a total of more than 750,000 person-miles, equal to thirty times around the earth (once each year). To care for this body of people there has been expended more than half a million dollars.

Mt. Washington was first climbed by the Club in 1877, and has been climbed 35 times by 885 members of the Club, in connection with regular excursions.

EXCURSIONS.

There were two Winter Excursions, conducted by the Snowshoe Section, — the first to Gorham, N. H., and the second to Jackson, N. H.

The GORHAM party, January 21–28, numbered forty and had headquarters at the Mt. Madison House. The first trip was to Pine Mountain, and this was followed the next day by a drive to the Glen and a walk up Nineteen-Mile Brook to the Club hut in Carter Notch. One day was spent at the Barrett Camp. On the 25th the Madison Hut was the goal. Train was taken to Appalachia Station in Randolph. The majority of the party reached the hut, after facing a cold wind on Durand Ridge. The head wall of the Great Gulf was scaled by a small party. An account of this has been printed in APPALACHIA.

The JACKSON trip, February 18–27, numbered eighty-six persons. The usual walks to Thorn, Iron, Doublehead, and Wildcat Mountains were taken. Small parties went to the Crawford Notch and to the summit of Mount Washington; and the Stanton-Pickering range was explored for the first time by the Section. Mr. Walter R. Davis was in charge of both winter trips.

The Memorial Day Excursion, May 26–31, was to SUNAPEE LAKE, N. H., with headquarters at the Ben Mere Inn, Sunapee Harbor. Eighty-one members and their friends participated: seventy-two left Boston, Friday, May 26th, in a special car attached to the 1.00 P. M. train.

Sunapee Lake is said to be at the highest altitude of any of the larger lakes of New Hampshire, and proved to be a satisfactory place for the excursion. On Saturday seventy participated in a trip to Sunapee Mountain, being driven in mountain-wagons about six miles to Johnson's Farm, on the side of the mountain. About half of the party climbed to various outlooks on the mountain. Sunday was spent quietly, the main feature being an excursion in the afternoon around the lake in one of the large steamboats, in which sixty-three of the party joined. Monday seventy-six visited Corbiu's Park, while thirty-one of the number climbed Mt. Croyden in the afternoon and reported it to be an exceedingly interesting mountain. On Tuesday, the 30th, an excursion was made across the lake, thence by mountain-wagons to Mt. Kearsarge in Warner, which was climbed by thirty-eight of the party. The return to Boston was made Wednesday afternoon. The party was in charge of Messrs. Thomas Edward Parker and Edward Moffette.

The fortieth Field Meeting was held at the Deer Park Hotel, NORTH WOODSTOCK, N. H., July 1-10, and was attended by fifty-one members and their friends.

The party left Boston Saturday, July 1, at 9.20 A. M., took dinner at the Pemigewasset House, Plymouth, and arrived at the hotel in the afternoon. Sunday was rainy; a few members of the party went to church, and others strolled up the East Branch as far as the pulp mill. In the evening an informal meeting was held in the parlor of the hotel, at which the President, Professor Charles E. Fay, read extracts from his article on "The Mountain as an Influence in Modern Life," which has since been published in APPALACHIA. Monday, July 3, five men of the party went to the summit of Mt. Moosilauke and back again by the Beaver Brook trail. Twenty-five of the party, under the leadership of Frank L. Clark, the guide, spent the day at Loon Pond Mountain, returning by the way of Loon Pond, and through the pathless forest to the side of the East Branch. While on the summit of the mountain the heliographic signal was recognized, flashed from the summit of Moosilauke, twelve miles away. Twelve members drove to West Thornton. Monday night, in the parlor of the hotel, was held the literary part of the Field Meeting. President Fay addressed the Club upon the subject of "Captain Samuel Willard's March across the Mountains in 1725." (See APPALACHIA, Vol. II., p. 336.) He was followed by Mr. F. Schuyler Mathews, the principal speaker of the evening, with an entertaining and instructive talk upon "The Familiar Birds of the Pemigewasset Valley," which he illustrated by water-color drawings, by whistling, and by the piano.

Tuesday, the Fourth of July, the five men of the Moosilauke party of the preceding day drove to the Profile House, climbed Mt. Lafayette, and traversed the Franconia Range from north to south. Five others, two ladies and three men, ascended Mt. Moosilauke by Little's Path, over Mts. Water-nomee and Jim, and looked into Jobildunk Ravine. The remainder of the party, some on foot, others in wagons, went to Agassiz Basin, and spent the morning there, and in the afternoon explored the Fay Reservation. In the evening the hotel provided fireworks in honor of the day. Red signals were lighted by the party on Mt. Moosilauke, which were answered from the valley below. Wednesday morning, the 5th, the Moosilauke party descended the mountain through the Beaver Meadows and down the Beaver Brook, clambered down for long distances beside the seven picturesque cataracts known as the "Pleiades" until, reaching the head of the gorge of Lost River, they lunched and awaited the driving party from the hotel. Twenty-five of the party spent four and a half hours in passing through the caves, caverns, and gorges of Lost River. On Thursday, the 6th, nearly the entire party went on foot or by carriage to Thornton Gore, where the day was spent in a picnic among the abandoned farms and deserted, uninhabitable houses. Friday a party of five men left early in the morning, breakfasted at the Flume House, and traversed the Franconia Range from south to north, passed the Club's Camp at the spring on the side of Mt. Liberty (the last chance for a drink of water for five hours), climbed Mts. Liberty and Little

Haystack, crossed the bold, rocky ridge between Little Haystack and Lincoln, to the summit of Lafayette, and thence to the Profile House at its base. The rest of the party went by carriages to the Flume, visited the Pool, stopped at the Basin on their way through the Pemigewasset Valley, and arrived at the Profile House an hour or two before the walking party. Two climbed Mt. Pemigewasset. Nearly all the driving party returned to the Deer Park Hotel in the late afternoon, but half-a-dozen remained with the walkers for dinner at the Profile House, and drove home by moonlight. Saturday many of the party left the hotel for their homes, some of the young folks went horseback riding, others of the party wandered at their will, still others visited the "Mummies," a succession of elongated hollows, with here and there a circular pot-hole, in the bed of the Pemigewasset River. Sunday afternoon a final ramble was taken to the Fay Reservation, and Monday morning, July 10, the party returned to Boston. The party was conducted by Messrs. Edward Little Rogers and John Ritchie, Jr.

A Pacific Coast Trip, in conjunction with the Sierra Club of San Francisco, Cal., and the Mazamas of Portland, Oregon, was made in July and August, to Paradise Park and MOUNT RAINIER, Washington. A party of twenty-seven was in charge of Mr. William A. Brooks. An account of the trip is given elsewhere in the present number of APPALACHIA.

The August Camp pitched its tents in the open pasture at the rear of the site of the old GLEN HOUSE, overlooking the valley of the Peabody River.

August 2 saw the arrival of the setting-up party, and two days later a well arranged camp greeted the incoming of the main party, which had driven through Pinkham Notch from Glen Station. Saturday, the day after the arrival, a ramble was had down the valley to Nineteen-Mile Brook, which was followed for two miles, the return being over the Glen House "Cut-off." Sunday afternoon, about the camp fire, Rev. J. E. Johnson, of Philadelphia, gave an informal address on "The Mountains and their Lessons." Monday three parties were on the trail: one to Madison Hut, via the re-opened Osgood Path, another to Tuckerman Ravine by the Raymond Path, a third to Carter Notch and the Camp. Tuesday the Madison Hut party took the Gulfside trail to Mt. Washington, meeting the Tuckerman party, which had climbed through the Ravine, and returning to camp by the carriage road, while the Carter Notch party ascended Wildcat, followed the ridge south for two miles, then down through the Ravine to the Glen Road, and thence to camp. Wednesday a picnic was had at Glen Ellis Falls, with a visit to the Pinkham Notch Boulder, to which a path had recently been cut, a second party going to the Crystal Cascade. Thursday parties visited Madison Hut, via the Osgood trail, and Hermit Lake by the Raymond Path, an offshoot from the latter party ascending Washington through the Ravine of Raymond's Cataract, returning by the carriage road, while on the following day the return of the first two parties was made over reverse routes. Saturday all joined in a picnic lunch on Huntington Brook; in the afternoon, fourteen ascended Huntington Ravine, and returned in the evening by the carriage

road. Sunday a party left by the Carter-Moriah path, spent that night at Carter Notch Camp, Monday night at Imp Camp, and returned Tuesday by wagon from Gorham. Monday those left in camp walked and drove up the carriage road to Mt. Washington, from whence seven descended into the Great Gulf on the Clay side, and camped under the shadow of Jefferson, ascended Jefferson Ravine the following day, and returned by Lowe's and Randolph paths and wagon to camp. Wednesday a third party visited Carter Notch, while Thursday several drove to Lead Mine Bridge in Shelburne.

The party, which numbered thirty-five with an average attendance of thirty, returned to Boston Thursday, August 17. Miss Hattie A. Kimball acted as cook, assisted by Mrs. Dodge, and three boys from the Wakefield (Mass.) High School as waiters. Vyron Lowe and George Howard were the guides. Mr. Harland A. Perkins was in charge of the trip.

The Labor Day Excursion was to AMHERST, Mass., with headquarters at the Amherst House, and the welfare of the party was cared for by various members of the Amherst Mountain Club.

The party, numbering thirty-two members and friends, left Boston September 1, at 1.40 P. M., and arrived at Amherst about 5.00. In the evening Professor Emerson opened his lecture room and spoke to the party about the geology of the locality. Saturday morning nearly the entire party, escorted by members of the Amherst Mountain Club, went by trolley car to the Notch, in the Holyoke Range, where fourteen made the traverse of the range from the Devil's Garden. The remainder of the party continued by trolley car, carriages, and inclined railway to the summit of Mt. Holyoke, where they were met by the walking party, who had climbed the ten mountains known as Bare Mountain, Mt. Hitchcock, and the Seven Sisters. When the summit of Mt. Holyoke was reached, the sunlight of the morning had disappeared, and later a downpour of rain set in, through which, after a dinner at the Prospect House on the summit, the party took its departure from the mountain, and by cable car, wagon, and trolley reached the hotel at Amherst. Sunday it rained all day. Several of the party, in the afternoon, took trolley trips into the surrounding country, visiting Northampton and the Deerfields. Others attended an organ recital which was arranged for them in the Music Hall of the College. Monday, Labor Day, the rain continued, but the party embarked in two trolley cars for the summit of Mount Tom, which was ascended and descended in the rain. In the late afternoon the weather cleared, and several of the party went back to Mount Tom; others took the trolley car for Sunderland, walked across the Connecticut River to Deerfield, and enjoyed a magnificent sunset. Tuesday morning, the 5th, the party visited the college buildings and museums, and in the early afternoon departed for Boston. The party was in charge of Mr. and Mrs. Edward Little Rogers.

An Excursion to MOUNT KTAADN was made September 1-10. On Friday, September 1, a party left Boston, and arrived at the South Twin Lake House early Saturday morning, where a steamer was taken for the sail of fourteen

miles across the lake to the Ambajejus Carry on the West Branch of the Penobscot River, whence the party proceeded, partly on foot and partly in canoes, to the Outing Camps of C. C. Garland, situated on first Debsconeag Lake, and arrived in time for a late dinner. The camps are finely situated on the north side of the lake, and about 150 feet above the level of the same. They are well managed, and the party was comfortably housed and provided for during their stay. Trips were made to Hinds Pond and Rainbow Lake, and on Thursday Mount Ktaadn was ascended as far as the temporary camp, which was pitched at an elevation of about 2200 feet above sea level, and about 1500 feet above the river. On Friday the party climbed the mountain by way of the Southwest Slide, and enjoyed the beautiful views and the grandeur of the basins and slopes as seen from the summit. The weather was rainy for five days out of the eight spent in the Maine woods; but during the time passed on the mountain the weather was clear.

The party numbered twelve persons, four ladies and eight men, and was conducted by Mr. Edward Moffette.

The Walking Party assembled, six in number, at the PIPER HOUSE, at the foot of Chocorua, on Tuesday afternoon, September 5. Another arrived on Saturday, and all remained through the entire walk. On Wednesday morning the party ascended to the Peak House by the Weetamoo trail, and spent the afternoon on the summit of the mountain. The route on Thursday was by the Brook trail to the valley, thence to Wonalancet, and in the afternoon by the Old Mast trail to Shackford's, returning on Friday to Piper's by the Sturgis Pray trail, and making the descent over the ledges of the northern peaks. On Saturday a crossing of the Swift River was made, it being necessary to carry a boat to the river on account of the unusually high condition of the water, the foot-bridge at Chase Farm being unsafe. The walk for the day was over the Moat Range, lunch being taken on the south peak, and the afternoon spent in traversing the delightful ridge. Sunday was passed at Intervale without special program, and on Monday the ascent of Kearsarge was made by the regular path, and the descent through the woods into the valley of the East Branch of the Saco. The climb was made up to Dundee, and in the late afternoon the party crossed to Jackson through the disused pasture road in Thorn Notch. Tuesday was exceedingly rainy, so that the company remained at Gray's Inn, starting on Wednesday for Carter Notch. Three remained in the Club Camp over night, making the ascent of Carter Dome on Thursday morning, and descending to the Glen in the afternoon. The advance party made the ascent of Washington by Tuckerman's Ravine on this day, returning by the carriage road, — a route that was taken by the second division on Friday, except that the latter gained Tuckerman's by the Raymond path instead of by Crystal Cascade. On Friday those who had climbed Washington on Thursday went back up into Carter Notch and made the ascent of Wildcat. The return to Boston was made on Saturday, September 16. The party was in charge of Mr. John Ritchie, Jr.

The Autumn Excursion was to LAKE MINNEWASKA, Ulster County, N. Y. . Some seventy members and their friends left Boston, via the Fitchburg Division of the Boston & Maine R. R., on September 21, at 6.19 P. M., in special Pullman cars, for Johnsonville, where the cars were sidetracked late in the night. At 5.00 A. M., the journey was resumed for Albany, via Troy. At Albany the cars were transferred to the Day Line dock, and passengers and baggage were put on board the steamer "Albany" for the down-river trip to Poughkeepsie, which place was reached at 1.20 P. M.; thence by ferry to Highland, where electrics were taken for the ride of ten miles to New Paltz; here carriages were taken for a drive of ten miles to the Wildmere House on the summit of the mountain. The country had been very dry, as no rain of any amount had fallen all summer; but during the two weeks preceding the arrival of the party the rainfall had been almost continuous, with the result that the streams were running full over the falls. Sunday morning a walk was taken to the Awosting and Upper Peterskill Falls, and in the afternoon a service of reading and song was held on Beacon Hill, about two miles from the hotel. Monday morning's tramp was to Millbrook Mountain, and the afternoon walk was to the Crevices, a long rent in the rock some three-quarters of a mile in length, and varying from twenty-five to sixty feet in height. Tuesday was Mohonk day — some walking over to the Lake and back, others walking one way, while the remainder drove over the new Under Cliff road, one of the finest mountain roads to be found anywhere. Wednesday was given to an all-day tramp of eight miles to "Gertrude's Nose," and return by Millbrook Mountain. Thursday was Awosting Lake day, all taking part in an open air lunch and camp life and a long rest. Friday morning's trip was to the Palmaghat; this crevice in the mountain still contains some of the largest and tallest hemlocks to be found in the east.

Saturday was a long day of travel. A drive to New Paltz, electrics to Highland, ferry to Poughkeepsie, and here electrics were taken to Vassar College, and a stroll was had over the grounds and through the buildings. At 1.20 P. M., the steamer "Albany" was taken for the trip to New York City. The 129th Street landing was reached at 5.00 P. M., and touring cars were taken for an auto ride down Riverside Drive, through Central Park, down Madison Avenue to the Park Avenue Hotel, where a stop was made for the night. On Sunday at noon the party left for Boston over the New Haven Road.

The party was conducted by Messrs. George D. Newcomb, William T. May, and Harland A. Perkins.

A Christmas Holiday Excursion, the first since 1892, was taken December 26—January 1, with headquarters at "THE NORTHFIELD," East Northfield, Mass. The party numbered 24, three of whom were resident at the hotel. It left Boston Tuesday, December 26, at 5.14 P. M., and arrived at the hotel about 9.45.

Wednesday morning a walk was taken to the summit of Strowbridge

Mountain, the Stone Chair, and Cathedral Pines, and in the afternoon a carriage drive was had to Lovers' Retreat, and a walk was taken up Pauchaug Brook. On Thursday, soon after breakfast, the entire party left by carriages for the long drive to the Pisgah Forest, a tract of about 6000 acres of virgin pine and hemlock in the southwestern part of New Hampshire. The weather was nearly perfect for such a trip. The river road was taken, passing through the towns of Hinsdale and Ashuelot, and the forest was reached about noon. Luncheon was had beneath the shade of a solitary primeval pine, the warmth of a campfire being enjoyed although not needed. After luncheon, four of the party drove around the forest to the westerly side, while the remainder, guided by Mr. L. F. Dickinson, one of the owners of the forest, tramped across from east to west, and climbed a shoulder of Mount Pisgah on the way. Night came early in the recesses of the forest, and the last two hours was made in the darkness, which seemed to be made the more intense because of the occasional lighting of matches, by whose fitful light the brooks were crossed. The carriages were reached about half after seven, and the long drive was taken back to the hotel. Friday was rainy, but as guests of the hotel the party drove to Mount Hermon, and visited the school buildings and farm barns. Saturday the long, up-hill drive was taken to Mount Grace, in Warwick, "fifteen miles going, and five miles coming home." Coffee was made and luncheon was eaten in a temporarily abandoned farmhouse, and Mount Grace was climbed, and the Parsons Reservation on Bennett's Knob was visited, the atmospheric conditions being nearly perfect for the most distant views. The return down the mountain was made past the grove of ancient chestnut trees, one of which measured twenty-eight feet in circumference, breast high. Sunday afternoon an eight-mile walk was taken to the Ice Cave; and Sunday night, in company with fifty or more students and others, the old year was "watched out," beside a great wood fire in one of the parlors of the hotel. Monday morning the party returned to Boston.

The excursion was enjoyable, although, owing to the absence of ice and snow, the anticipated winter sports could not be taken. The party was conducted by Mr. Edward Little Rogers.

EXCURSIONS.

Date.	Objective Point.	Committee.	Attendance.
1905.			
Jan. 21-28.	Winter Excursion to Gorham, N. H.	W. R. Davis.	40
Feb. 18-27.	Winter Excursion to Jackson, N. H.	W. R. Davis.	86
May 26-31.	Memorial Day Trip to Sunapee Lake, N. H.	{ T. Edward Parker. Edward Moffette.	81
July 1-10.	Field Meeting, Deer Park Hotel, North Woodstock, N. H.	{ E. L. Rogers. J. Ritchie, Jr.	51

EXCURSIONS.

July-August.	Pacific Coast Trip.	W. A. Brooks.	27
July 8-Sept. 8.	Camp at Three Mile Island.	{ R. B. Lawrence. Miss M. A. Knowles.	229
Aug. 4-17.	Camp at Glen, N. H.	H. A. Perkins.	35
Sept. 1-5.	Labor Day Excursion to Amherst, Mass.	Mr. and Mrs. E. L. Rogers.	32
Sept. 1-10.	Excursion to Mt. Ktaadn.	Edward Moffette.	12
Sept. 5-16.	Walking Party in White Mountains.	J. Ritchie, Jr.	7
Sept. 21-Oct. 1.	Autumn Excursion, Lake Minnewaska, N. Y.	{ G. D. Newcomb. W. T. May. H. A. Perkins.	70
Dec. 26-Jan. 1.	Christmas Holidays Excursion to the Pisgah Forest.	E. L. Rogers.	24
			<hr/> Total 694

OUTINGS.

Date. 1905.	Objective Point.	Distance. Miles.	Leader.	Attendance.
Jan. 7.	Houghton's Pond.	4	Miss H. E. Endicott.	Storm
14.	Candlewood and Rattlesnake Hills.	3	H. A. Perkins.	37
21.	Arlington, Menotomy Rocks Park.	4	J. E. Pember.	59
28.	Sandy Valley.	3½	E. Moffette.	43
Feb. 4.	Prospect Hill.	3	E. G. Chamberlain.	54
11.	Wellington Hill and Franklin Park.	4	E. W. Howe.	33
18.	Hemlock Bound.	6	E. L. Rogers.	45
22 (all day).	Lynn Woods.	5	T. E. Parker.	84
25.	Virginia Woods, Wamoset Hill.	5	F. H. Matthews.	32
Mar. 4.	Mystic Lake, Hills and Woods.	4	E. L. Homer.	17
11.	Cunningham Estate, Unquety Valley, and Hutchinson Field.	4	P. B. Field.	50
18.	Echo Bridge and Hemlock Gorge.	4	E. G. Chamberlain.	54
25.	Wakefield.	4½	H. A. Perkins.	Storm
Apr. 1.	Lynn Beach, Little Nahant.	5	T. E. Parker.	52
8.	Crossman Place and Hancock Hill.	5½	P. B. Field.	54
15.	High Rock and Lone Pine Tree Hill.	6	E. Moffette.	63
19 (all day).	West Gloucester and Coffin's Beach.	8	{ G. D. Newcomb. A. D. Wilde. J. A. Crosby.	211

Apr.	22.	Pond Road and Charles River Banks.	5	W. A. Brooks.	48
	29.	Lynn Woods, Dungeon Rock.	4	T. E. Parker.	70
May	6	(all day). Blue Hill Range.	9	W. A. Brooks.	55
		(afternoon). Joining all day party at foot of Hancock Hill.	3	G. D. Newcomb.	57
	13.	Baker's Hill and Crow Point.	4	Miss K. H. Andrews.	56
	20.	Morse's Pond and Lake Waban.	6	W. A. Brooks.	76
	27.	Old Furnace Brook and Bunker Hill Quarry.	4	E. L. Rogers.	32
	30	(all day). Carlisle Pines.	8	E. L. Rogers.	32
June	3.	Zion's Hill.	5	J. E. Pember.	51
	10	(all day). Powisset Cliffs, Noannet's Hill, Snow's Hill.	9	E. Moffette.	18
		(afternoon). Joining all day party at Noannet's Hill.	5	E. L. Homer.	21
	17	(all day). H. N. Shepard's Camp, Merrimac River.	3	{ G. D. Newcomb. A. D. Wilde. J. A. Crosby.	110
July	22	(all day). Rhododendron Reservation, Fitzwilliam, N. H.	6	E. L. Rogers.	25
Sept.	9.	Lynn Woods.	5	G. D. Newcomb.	52
	16.	Hull and Point Allerton.	3	Miss A. E. Lanning.	Storm
	23.	Nahant.	5	T. E. Parker.	116
	30.	Wayside Inn and Nobscot Hill.	5	E. L. Rogers.	62
Oct.	7	(all day and afternoon). Go-as-you-please Great Blue Hill.	5	{ J. Ritchie, Jr. A. R. Bailey.	90
	14.	Mt. Bellevue and Stony Brook.	3	J. A. Crosby.	70
	21.	Monantiquot Trail and Chickatawbut Hill.	5	E. L. Rogers.	89
	28.	Castle Rock.	4	E. L. Rogers.	89
Nov.	4.	Andover Hills.	3½	H. A. Perkins.	35
	7	(all day). Powow, Powder Horn, and Munday Hills, Whittier House.	6	J. Ritchie, Jr.	57
	11.	Ponkapog.	4	J. Ritchie, Jr.	108
	18.	Owl Hill, Waverley Oaks.	4	E. L. Rogers.	80
	25.	Lynn Woods.	3½	T. E. Parker.	57
Dec.	2.	Wilson Brook Ravine and Rapids.	4	E. Moffette.	58
	9.	"Dreamwold."	3	E. L. Rogers.	385
	16.	Fox Hill.	4	E. Moffette.	37
	23.	Norumbega Tower and Weston Gate House.	4	E. G. Chamberlain.	Storm

Dec. 30.	The Hundreds Woods and Mount Pennell.	4	W. A. Brooks.	46
Total attendance, 44 Outings,				2940
12 Excursions,				694
				3634

The following comparative statement may be of interest:

1901.	Total attendance on 43 Outings,	1687	Average	39.
1902.	" " " 46 "	1688	"	38.
1903.	" " " 45 "	2527	"	57.
1904.	" " " 51 "	2868	"	56.
1905.	" " " 44 "	2940	"	67.
		229	11710	51.

WILLIAM A. BROOKS,
EDWARD MOFFETTE,
GEORGE D. NEWCOMB,
T. EDWARD PARKER,
HARLAND A. PERKINS,
EDWARD LITTLE ROGERS,

*Committee on
Field Meetings
and Excursions.*

Proceedings of the Club.

June 14, 1905.—Two hundred and forty-seventh Corporate Meeting, held in Room 22 Walker Building.

Vice-President Curtis in the chair.

The attendance was about one hundred and fifty.

Mr. Edmund A. Whitman gave an illustrated talk on "A Trip with the Sierra Club in the High Sierras." Mr. and Mrs. Whitman had the pleasure of spending several weeks in the summer of 1904 in the high Sierras, as members of the summer excursion party of the Sierra Club. With the aid of a map the speaker traced the route of the party, and with a large number of lantern views showed the scenery of the Yosemite Valley, the Tuolumne Canyon and Hetch-Hetchy. Three peaks were ascended, — Mounts Hoffmann, Dana, and Lyell. The camping arrangements of the Sierra Club were explained at length, and many views illustrated the camps and costumes.

July 1-10, 1905.—Fortieth Field Meeting of the Appalachian Mountain Club, held at the Deer Park Hotel, North Woodstock, New Hampshire.

On Sunday evening, July 2, a service of song was held in the parlors of the hotel, after which the President, Professor Charles E. Fay, read extracts from "The Mountains as an Influence in Modern Life." [See APPALACHIA, Vol. XI., No. 1.]

On Monday evening, July 3, a meeting was held in the hotel. President Fay was in the chair and Mr. Stephen Carleton Rogers was elected Secretary *pro tempore*. There were sixty-eight persons present. The President, after a few remarks upon the difference between field meetings and excursions, gave an outline of "Capt. Samuel Willard's March" from Sept. 30 to Oct. 6, 1725, and expressed the hope that at some time the Club officially, or by some of its members, would make the attempt to go over that part of the route, here right at hand, between the Pemigewasset and Saco Valleys. The story of his march is to be found in *APPALACHIA*, Vol. II., No. 4, Dec. 1881.

Mr. F. Schuyler Mathews of Cambridge, the principal speaker of the evening, was then introduced. He spoke on "The Familiar Birds of the Pemigewasset Valley." He said the only way to tell birds is by their songs. No two birds have the same song, and no two birds belonging to different classes sing the same way. He imitated the various songs of birds by rapping on a table, whistling, playing the piano, and flute. As he imitated the songs of each, he showed a colored chart of the bird, with its notes below. The birds imitated, twenty-eight in number, were all seen or heard by him at North Woodstock.

October 11, 1905. — Special Meeting, held in Huntington Hall.

President Fay in the chair.

About four hundred persons were present.

Miss Annie S. Peck gave an illustrated lecture entitled "Bolivia and Mount Sorata." After an introduction giving the plans and equipment for her first expedition, the lecturer described her trip over the mountains (14,666 ft.), the visit to the half-Indian city La Paz, the great mountain Sorata, the town of Arequipa, location of the Harvard Observatory, the ascent of El Misti (19,200 ft.), and the descent into the crater. On her second expedition Miss Peck ascended Sorata to an elevation of 20,500 feet, passing two nights on the snow above 18,000 feet at twenty degrees below zero. The lecture was very finely illustrated. [See p. 95.]

October 17, 1905. — Two hundred and forty-eighth Corporate Meeting, held in Room 22 Walker Building.

President Fay in the chair.

The attendance was one hundred and thirty-five.

Mr. Stephen P. Sharples gave an illustrated paper entitled "Swan Island in the Caribbean Sea." The Swan Islands, two in number and containing four and one half square miles, are situated two hundred miles from Cuba, and one hundred from Honduras. The speaker visited them twice for the purpose of examining a deposit of fuller's earth, which was not found to be of commercial value. He described the physical features of the island, the vegetation, birds, fishes, animals and human inhabitants. He made a special study of the coral and the vegetation, identifying forty to fifty plants.

There are almost no native animals except snakes and the iguana. The chief industry of the inhabitants is basket-making. The lecture was well illustrated with many stereopticon views.

November 8, 1905. — Two hundred and forty-ninth Corporate Meeting, held in Huntington Hall.

President Fay in the chair.

The attendance was about four hundred and ten.

Mr. William A. Brooks gave an illustrated talk entitled "A Summer among the Snow Peaks of Oregon, Washington, and British Columbia." The speaker was one of the members who participated in the excursion of the Sierra Club and Mazamas to Mount Rainier last summer. (See p. 114.)

Beginning with an ascent of Mt. Hood in Oregon, a visit to the Lewis and Clark Exposition in Portland and an excursion up the Colorado River, the lecturer then took the audience with him on the camping trip to Mount Rainier, the annual summer excursion of the Sierra Club. The Appalachian Mountain Club party consisted of twenty-seven members and friends who were with the Sierra Club division, the President, however, being a guest of the Mazamas.

The lecture was profusely illustrated by views taken by the speaker and other members of the party.

November 15, 1905. — Special Meeting ; held in Huntington Hall.

Vice-President Curtis in the chair.

About two hundred persons were present.

Professor J. Franklin Collins of Brown University gave an illustrated lecture entitled "The Gaspé Peninsula." The speaker gave an interesting and valuable account of a trip made in the summer of 1904 by himself and two friends, members of the New England Botanical Club. By means of a map he showed the location of the Peninsula between New Brunswick and the Gulf and River St. Lawrence, and traced the route of the party. The region, which comprises 12,000 to 13,000 square miles, is densely wooded, except near the shores of the rivers and bays. Many fine lantern views illustrated the scenery along the St. Lawrence, Bonaventure, and Grand Rivers, Chaleur Bay and Gaspé Basin, and particularly the Rocher Percé, an impressive scenic feature. The canoes of the region and the methods of using them were also illustrated. The lecture was replete in information geological, geographical, and botanical.

December 5, 1905. — Two hundred and fiftieth Corporate Meeting, held in Room 22 Walker Building.

President Fay in the chair.

The attendance was about one hundred and seventy-five.

At the beginning of the meeting the Club voted unanimously to adopt the following amendment to the By-Laws: "Amend Article VII. by omitting

the words 'shall have charge of the library' so that the Article shall read: 'The Corresponding Secretary shall conduct the official correspondence of the Club, shall keep proper files and records of the same, and shall make a report for the previous year at the annual meeting.' "

Professor William H. Niles addressed the Club, his title being "Keeping School in Winter among Appalachian Hills a Half Century Ago." After a few words concerning the hills of western Massachusetts, which are similar in character to the Appalachian ranges of Pennsylvania, long parallel ridges running north and south, the speaker described his first experiences in keeping a country school on a hilltop in an isolated district and in the town of Worthington. The date was December 4, 1855. Particularly impressive was his description of the heavy winds, the deep snows, and the grand views. Above the money compensation, which was at first only \$14 a month, he placed the friendship of his pupils and their appreciation of what he had been able to do for them.

Mr. Hollis Webster, Councillor of Natural History, presented his report, in which he recommended that the Club dispense with its herbarium. (See p. 164.)

Mr. Frederic V. Fuller, Councillor of Topography, presented his report, showing the work done by Mr. E. G. Chamberlain upon his Blue Hill Profile and his maps of thirty-five outings. (See p. 165.)

Mr. Harland A. Perkins presented the report of the Department of Improvements under the title "The Cruises of a Councillor," thirty-five lantern views being shown in illustration of the Club's paths and camps. In narrative form he described his trips taken last summer, particularly those over the Carter, Twin, and Lafayette ranges. (See p. 170.)

December 20, 1905. — Special Meeting ; held in Huntington Hall.

President Fay in the chair.

The Committees having charge of the Field Meetings and Excursions, the Snow Shoe Trips and the Club Camp at Three Mile Island presented their reports. The subjects and speakers were as follows : —

The Winter Excursions, Mr. W. R. Davis ; Memorial Day Excursion to Lake Sunapee, Mr. T. E. Parker ; Field Meeting at North Woodstock, Mr. Edward Little Rogers ; Three Mile Island, Mr. R. B. Lawrence ; Pacific Coast Excursion, Mr. W. A. Brooks ; August Camp at Glen, Mr. H. A. Perkins ; Labor Day Excursion to Amherst and the Saturday Outings, Mr. Edward Little Rogers ; Canoeing and Camping Trip to Mt. Ktaadn, Mr. E. Moffette ; September Walking Party, Mr. J. Ritchie, Jr. ; Autumn Excursion to Minnewaska, Mr. G. D. Newcomb.

The lantern slides were made, and many of them colored, by Edward Little Rogers; and during an intermission, upon motion of Mr. William A. Brooks, a rising vote of thanks was tendered to Mr. Rogers for his beautiful work.

The meeting lasted until 10.30, and comparatively few of the six hundred people present were obliged to leave before the close.

January 6, 1906. — Special Meeting ; held in Huntington Hall.

Señorita Carolina Holman Huidebro gave an illustrated lecture entitled "Over the Chilean Andes to Argentina." After a few views illustrating the Isthmus of Panama, the port of Valparaiso, and the flowers of Santa Rosa, the lecturer carried her audience through the Uspallata to the Pass of Bermejo up to the Plateau of the Churches, where stands the famous statue of Christ, the great international monument commemorative of permanent peace between Chile and Argentina. It was inaugurated March 13, 1904, on the very dividing line of seventy years' dispute, at an altitude of 14,400 feet above the sea. Fine views were shown of Aconcagua, 23,000 feet, and other high peaks of the Andes, and of the scenery of the Aconcagua and Mendoza rivers.

After a few views of Mendoza and Buenos Ayres a trip was taken through the three provinces of the territory of Patagonia to Punta Arenas on the Straits of Magellan. A large number of lantern views beautifully colored was thrown upon the screen. The audience numbered about six hundred.

January 10, 1906. — Two hundred and fifty-first Corporate (Annual) Meeting ; held in the Lecture Hall of the Boston Society of Natural History.

President Fay in the chair.

The attendance, including nine ex-Presidents, numbered ninety-nine.

Final action was taken upon the following amendment of the By-Laws: "Amend Article VII. by omitting the words 'shall have charge of the library' so that the Article shall read, — 'The Corresponding Secretary shall conduct the official correspondence of the Club, shall keep proper files and records of the same, and shall make a report for the previous year at the annual meeting.'" The vote in favor of the amendment was unanimous.

The reports of the Councillors of Art and Exploration and Forestry were read and accepted. (See pp. 167 and 168.)

The Annual Reports of the Recording and Corresponding Secretaries, Treasurer, Trustees of the Permanent and Reserve Funds and Trustees of Real Estate were presented, and it was voted that they be accepted and placed on file. (See pp. 151-164.)

Remarks were made by several members concerning matters mentioned in the reports of the Treasurer and Trustees of Real Estate.

The report of the Committee to nominate officers for 1906 was presented by Mr. Alexis H. French, and upon ballot being taken the following candidates were unanimously elected, seventy-nine ballots being cast : For President, Allen Chamberlain ; for Vice-President, George N. Whipple ; for Recording Secretary, Rosewell B. Lawrence ; for Corresponding Secretary, Gardner M. Jones ; for Treasurer, Rufus A. Bullock ; for Councillors : Natural History, J. H. Emerton ; Topography, Richard A. Hale ; Art, Martha A. Vinal ; Exploration and Forestry, Harlan P. Kelsey ; Improvements, Harland A. Perkins ; for Trustees: Permanent and Reserve Funds (for three years) Isaac Y. Chubbuck ; Real Estate (for four years), Harvey N. Shepard.

President Fay appointed Mr. French a committee to escort the President-elect to the chair, and President Chamberlain accepted the position, expressing his appreciation of the honor conferred and his great interest in the Club.

Professor W. H. Niles addressed the Club concerning the work of Professor Charles E. Fay, mentioning that he presided at the first meeting and has served as President four times and has been active in many departments, particularly as editor of APPALACHIA, and offered a motion that the members of the Club, by a rising vote, express their respect and honor for Professor Fay and their high appreciation of his services for the Club. The vote was passed unanimously.

President Chamberlain then appointed the following committee on Annual Reception: Mr. Edward Little Rogers, Chairman; Miss Martha A. Knowles, Miss Martha A. Vinal, Miss Anne F. Paul, and Mr. Fred. H. Tucker.

January 20, 1906. — Special Meeting, held in Huntington Hall.

President Chamberlain in the chair.

Mr. Gifford Pinchot, Chief of the United States Forest Service, spoke in support of the proposed extension of the Federal forest policy to the eastern section of the country, through the establishment of reserves in the Southern Appalachians and in the White Mountains of New Hampshire. (See p. 134.)

At the close of the address interesting remarks were made by several other speakers: Dr. Henry P. Walcott, President of the Massachusetts Forestry Association; Rev. Charles F. Dole, President of the Twentieth Century Club, and Mr. James P. Munroe, representing the Society of Arts.

The attendance was about five hundred.

February 6, 1906. — Two hundred and fifty-second Corporate Meeting, held in Huntington Hall.

President Chamberlain in the chair.

Mr. Alden Sampson, of Haverford, Pa., recently Game Preserve Expert, United States Biological Survey, gave a lecture entitled "The Life of the Forest." The lecture was accompanied with colored stereopticon views, illustrating the vegetation and animal life of the forest reserves of California and Washington.

A map was thrown upon the screen showing the reserves of the western half of the country, and the lecturer explained the efforts now being made to establish game refuges in the same. This subject was first taken up by the Boone and Crockett Club of New York in 1902, and there is a bill in its favor before the present session of Congress.

Among the hundred lantern views were many showing the various kinds of wild animals from the field mouse to the Sierra grizzly, and numerous

pictures of wild flowers and forest trees were shown. Sierra mountain scenery was finely illustrated, the summits of Mts. Whitney, Lyell, and Ritter being shown, and an account given of the ascent of the Half Dome in the Yosemite Valley by the lecturer in 1884.

The audience numbered about four hundred and twenty-five.

March 6, 1906. — Two hundred and fifty-third Corporate Meeting, held in Room 22 Walker Building.

President Chamberlain in the chair.

Mr. Lawrence Martin, a member of the United States Geological Survey, gave an illustrated paper entitled "Ancient and Modern Glaciers of Yakutat Bay, Alaska." The speaker pointed out upon the map the position of Yakutat Bay and described the great Malaspina Glacier and the four glaciers of the fjord. He then described the work done by Professor Israel Cook Russell in 1890-91 and that of the Harriman Expedition in 1899. His own observations made several years later enabled him to draw interesting comparisons with the observations of the previous parties, showing the changes which had taken place in the various glaciers. Many fine lantern views were shown, those illustrating the hanging glaciers being particularly interesting.

Mr. H. K. Barrows, of the United States Geological Survey, gave an illustrated paper on the Hydrography of New England, as studied by the Survey.

The speaker first described the different departments of the works of the Survey, — hydrography, hydrology, hydro-economics and the reclamation service. He then gave an account of his own work in New England in measuring rivers, and showed many lantern views illustrating the conditions of the rivers, including log jams and floods.

The audience was two hundred and sixty.

March 13, 1906. — Special Meeting, held in Room 22 Walker Building and Huntington Hall.

President Chamberlain in the chair.

Mr. W. W. Hart was elected Secretary *pro tempore*.

On motion of Mr. H. N. Shepard, the President of the Club and the Chairman of the Board of Trustees of Real Estate were instructed to sign for the Club a remonstrance against the sign already erected at No. 2 Park St.

There being 600 persons present, the meeting was adjourned to Huntington Hall.

Mr. Harvey N. Shepard spoke on his recent trip to Switzerland and France, with special reference to the Matterhorn and Mt. Blanc, to the Hospice of St. Bernard and to the remarkable work performed by the monks there, and also to the interesting political conditions that exist in Switzerland. Many excellent slides were exhibited.

April 10, 1906. — Two hundred and fifty-fourth Corporate Meeting, held in Room 22 Walker Building.

President Chamberlain in the chair.

Mr. Arthur A. Shurtleff addressed the Club upon "The development of the woodlands in the Boston Metropolitan forest reservations through improvement thinnings and tree planting."

By means of crayon sketches upon the blackboard the speaker illustrated the difference in growth of various trees when standing alone in the dense forest, and also the development of the forest from seedlings and sprouts. He explained the consequences of fire and cutting and the difference in nutriment which the trees enjoy in the Metropolitan reservations and the mountain forests. He emphasized, first, the necessity of preventing fires for the protection of seedlings and the humus; second, the cutting of small gray birches which suppress the growth of longer lived trees; third, the removal of dead, dying, and suppressed trees in order to help the better and more vigorous trees; and fourth, the imperative need of fighting the gypsy moth, the work of destroying this pest making it necessary to remove all trees which can be spared and temporarily to clear the ground of underbrush and even the cover of ferns. He closed by mentioning the cutting which becomes advisable in certain places for the sake of opening up views. The special points made by the lecturer were well illustrated by the lantern.

The audience numbered one hundred and ten.

April 17, 1906. — Special Meeting, held in Room 22 Walker Building.

President Chamberlain in the chair.

Mr. William Lyman Underwood of the Massachusetts Institute of Technology gave a lecture, illustrated with colored lantern slides, on "The Brown Tail and Gypsy Moths; their Life Histories, and Suggestions for their Suppression."

The speaker told how the gypsy moth was imported into Medford in 1868 and the brown tail into Somerville in 1890, and explained the ravages by the pests and the efforts made to suppress them, particularly by the Commonwealth in 1890-1900. His illustrated account of the life history of the Gypsy Moth was exceedingly interesting, and his distinctions between the two moths and their caterpillars were very clearly portrayed. The methods of fighting both species were also explained and illustrated. Although the subject was not a pleasant one, the lecture was interesting, very instructive, and beautifully illustrated.

The audience numbered one hundred and thirty.

April 24, 1906. — Special Meeting, held in Room 22 Walker Building.

President Chamberlain in the chair.

Upon motion of Mr. George N. Whipple, seconded by Mr. William A. Brooks, it was unanimously voted: "That a special committee be and is

hereby appointed, to consist of Professor Charles E. Fay, Chairman, President Allen Chamberlain, Mrs. Lucinda W. Prince, and Messrs. J. H. Emerton and W. A. Brooks to extend at once the sympathy of this Club to the Sierra Club of San Francisco in the terrible calamity that has befallen their city and their Club, and to consider what, if anything, the Appalachian Mountain Club can do to assist the Sierra Club, and report recommendations to the Council."

Professor Herschel C. Parker of Columbia University gave an illustrated lecture entitled "From Mexico to Glacier Bay." The speaker told briefly his travels in Mexico, showing views of Mt. Orizaba, Ixtaccihuatl and Popocatepetl; then followed a few excellent views of the petrified forest in Arizona and of the Grand Cañon of the Colorado. The ascents of Mts. Lowe, Tamalpais, Shasta, Hood, and Rainier were all described, together with a balloon ascension at the Lewis and Clark Exposition.

The scenery of Taku inlet and glacier and Muir glacier in Alaska was illustrated, and the lecturer closed with a fine set of views illustrating Sir Donald and the mountains and lakes of the Yoho Valley, British Columbia.

The attendance was one hundred and eighty-five.

May 9, 1906. — Two hundred and fifty-fifth Corporate Meeting, held in Room 22 Walker Building.

President Chamberlain in the chair.

Mr. Alleyne Ireland, a Fellow of the Royal Geographical Society and expert on subjects relating to the Orient, addressed the Club on the subject "Native and White Man in the Far East." First, the speaker showed that the ancient civilizations of Egypt and India ceased with the development of the northern races, and that there is in the tropics, except in Siam and Hayti, no genuine self-government and no contribution to human advancement. He then spoke of the bad government and the religious prejudices the white man found when he began the colonization of the tropics. He described at length the great work accomplished by Sir Andrew Clarke and the English residents in the Malay Peninsula, explaining the methods used and results obtained. He believes that the treasures of the Philippines and the indisposition of the Filipinos to work justify the white man in governing and developing those islands, the great difficulty being that the American administrators go straight to Manila without seeing what the English have accomplished in their colonies.

Lantern views were thrown upon the screen illustrating the peoples and customs of Malay and Japan. The audience numbered about one hundred and fifty.

May 15, 1906. — Special Meeting, held in Room 22 Walker Building.

President Chamberlain in the chair.

Miss Minna Eliot Tenney gave an illustrated lecture entitled "Greece, Ancient and Modern." The lecturer took her audience with her on a tour

through Greece, visiting Corfu, Athens, Parnassus, Delphi, Thermopylæ, Pharsala, and the monasteries of Metoria, the Vale of Tempe, the battle-field of Marathon, Acro-Corinth, Nauplia, Mycenæ, Tiryns, Olympia and Patros.

The lecture was profusely illustrated. The audience numbered one hundred and seventy-five.

Officers for 1906.*President.***ALLEN CHAMBERLAIN.***Vice-President.***GEORGE N. WHIPPLE.***Recording Secretary.***ROSEWELL B. LAWRENCE.***Corresponding Secretary.***GARDNER M. JONES.***Treasurer.***RUFUS A. BULLOCK.***Councillors.**Natural History*, J. H. EMERTON.*Topography*, RICHARD A. HALE.*Art*, MARTHA A. VINAL.*Exploration and Forestry*, HARLAN P. KELSEY.*Improvements*, HARLAND A. PERKINS.*Trustees of Permanent and Reserve Funds (for Three Years).***ISAAC Y. CHUBBUCK.****CHARLES H. FRENCH.****REST F. CURTIS.***Trustees of Real Estate (for Four Years).***HARVEY N. SHEPARD.****EDWARD F. STEVENS.****J. RAYNER EDMANDS.****AUGUSTUS E. SCOTT.****HARLAND A. PERKINS, *Ex officio*.**



DETACHMENT FROM THE WEST

APPALACHIA.

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No. 3.

Climbs on Popocatepetl and Ixtaccihuatl.¹

BY CHARLES A. GILCHRIST.

AMECAMECA is no longer the starting-point from which to climb Popocatepetl or Ixtaccihuatl, for within a few years "Popo Park" has sprung into existence. Here is a delightful little inn, well situated in a grove of pines, about four miles from Amecameca and forty miles from Mexico City by rail. The place is managed by Captain D. Carlos Holt in a way that makes you want to come back. Here you will take as much delight in eating as anywhere in Mexico.

Captain Holt makes it a part of his business to outfit expeditions for the ascent of Popocatepetl. Between January 22 and February 16, 1907, I made four excursions to these two mountains from Popo Park. In the first trip I ascended to the crater of Popocatepetl; the following three trips were necessary to reach the summit of Ixtaccihuatl. Altogether I spent fourteen days upon the mountains. The outfit usually consisted of four Mexicans, two horses, and a pack-mule loaded with the necessary camping paraphernalia. One of the Mexicans looked after the camp and cooking. Another looked after the horses, and, I regret to say, almost never had them at the appointed spot when I returned from the snows and especially wanted a "lift" back to camp. The other two Mexicans were called "guides," and (on Ixtaccihuatl, at least) I made the mistake of considering them as such. They are good porters, and are strong and well adapted to high altitudes. All of this outfit was furnished by Captain Holt at a moderate cost of about nine dollars a day.

¹ Presented through the AMERICAN ALPINE CLUB.

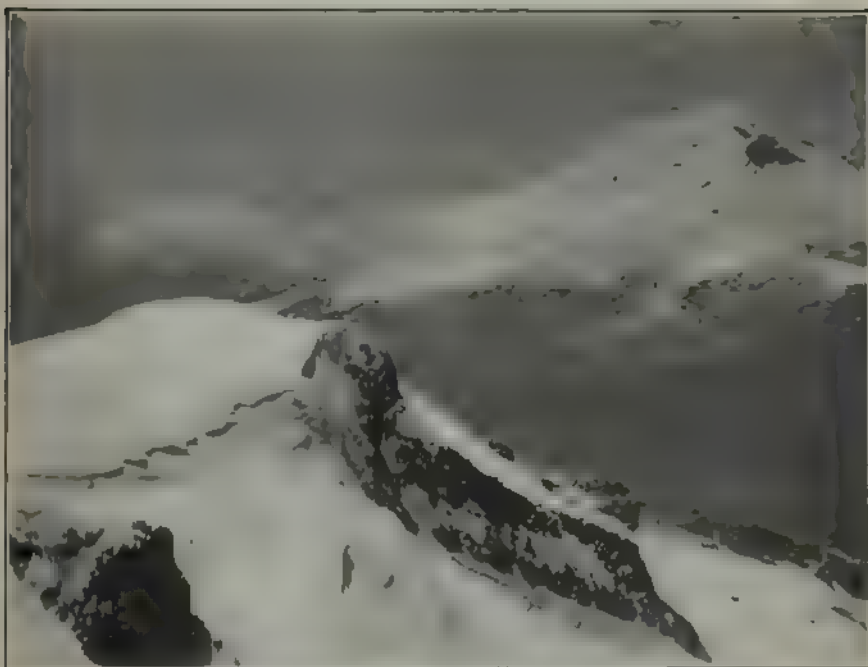
Popocatepetl (17,800 feet) is now quite frequently the object of an ascent. Out of every four that attempt it, perhaps one reaches the crater, the difficulty being the rarity of the air and consequent exhaustion and sickness. In ascending Popo I spent the night at the usual place, the ranch of Tlamacas. The roof of these shanties leaked badly, and the place was always full of smoke from our fire. Throughout the day the two great snow mountains were hidden in clouds for the most part. Directly after we reached the shanties it began to hail, and by morning two inches of snow had fallen.

At four o'clock in the morning I started for the summit amid falling snowflakes and snow-laden pine boughs. Horses were used until seven o'clock, when they could be forced no farther, for want of air and an increasing grade. The mountain was now covered with about six inches of soft fresh snow, and it continued to fall all day, off and on. Soon our caps and clothing were encrusted with snow and ice. It was only moderately cold, however, and there was very little wind. For six and a half hours we plodded upwards, nearly all the time enveloped in the same blank whiteness. In the upper portions I was going at the rate of one step up to ten deep breaths, and even at that resting for longer spells about every twenty feet. I left my camera in the snow about halfway up, since my man Andreas had all he could carry without it. The ascent was in zigzags up the cone, which was a uniform slope of white, clear to the top, without break of rock or other feature. Usually we could see for a few hundred feet only; but at times a rift in the storm would bring the profile of the peak to view, as two great white lines running upwards to an interminable height that never seemed to grow less.

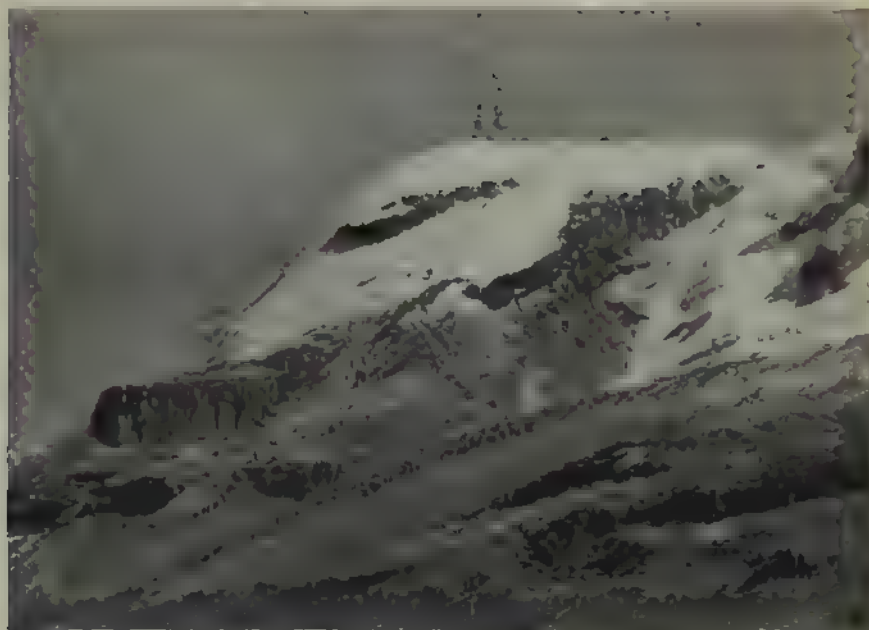
Very early in the day there was a time for a few moments when there was a general breaking away of the clouds. The effects for those few moments were indescribably grand. Here the sky was not limited to the space above, but extended into the depths as well. We looked under a sea of cloud, and over a sea of cloud, and through seas of cloud, — down — down — and still down to the other seas of cloud, and then through the lowest to earth again, to the great plains of Apam, still 7000 feet above the sea. When you are in the clouds these changes take place very rapidly. The



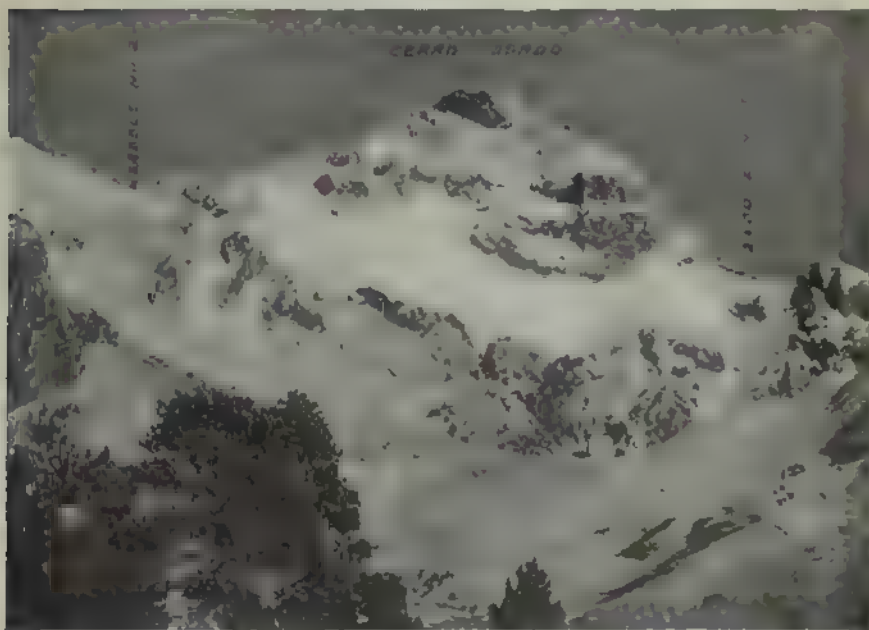
ORIZABA FROM THE WEST



POPOCATEPETL FROM THE SUMMIT OF IXTACCIHUATL
THE FEET AND OYOLOCO GLACIER IN THE FOREGROUND
From photographs by Charles A. G. Christy



SJMMIT OF IXTACCIHUATL FROM THE SOUTHWEST



CERRO GORDO FROM THE NORTHWEST

From photographs by Charles A. Christ

sun may burst out only a moment after being immersed in the darkness of a thunder-cloud. Since all this occurred when the sun was still quite low, the colors too were wonderful, phantom-like rosy hues appearing suddenly here and there in contrast to the cold blue of the lower plains. At times the coloring was so vivid as to suggest the arctic sunset colors that explorers have tried to depict. These atmospheric effects were unlike anything I had ever seen below. They were almost appalling, for we seemed to have gotten free from earth altogether.

The climb is distinctly long, monotonous, and exhausting. Just before each rest I was convinced that I must turn back: but after the rest I was invariably determined to make it, and thus the time passed between these alternating feelings.

It was not until 1.30 that we suddenly emerged upon the rim of the crater, before as weird a sight as I have ever looked upon. There is little premonition of the existence of the crater as you approach it. The transition from the snow-slope to the interior dark cliffs is abrupt. On this snowy day, the absence of an outer horizon line and the apparent extension of the sky dome down to the lower half of the celestial sphere made the crater appear like an unsubstantial hole floating in space. Even the opposite walls were dimmed by the falling snow. Imagine a chasm as large as four city blocks and deep enough to entirely hide the Washington Monument, the sides everywhere dark vertical crags. In the bottom a green little lake, and around the sides six or eight columns of smoke issuing intermittently from the centres of as many patches of yellow sulphur and ascending with low, sullen roars to mix with the mists above. What a fitting place for the chimera to live! And I could almost believe that the smoke proceeded from his three ugly heads, but he did not flop out into the abyss in answer to our taunting shouts.

Climbers usually descend Popo by sitting on a straw mat and sliding: but we were not so lucky, for the fresh soft snow banked up in front and hindered progress, so that walking was really easier. I occupied nine and a half hours from Tlaxcala to the crater and two and a half hours in the return, with one hour at the top.

About four o'clock it stopped snowing, and the clouds separated themselves from the mountain a little, as dark gray masses.

Nothing distant could be seen, only the immediate slopes of the peak, which had now been whitened far below the ordinary snow line. Here and there in the lower portions dark rocks protruded, which we continually mistook for the horses that we were eagerly looking for, but did not find. Once a rocky mountain face suddenly appeared high up in the clouds, probably the cliffs of Ixtaccihuatl.

After a second night at Tlamacas I was treated to the most glorious views of Popo under a bright sun with deep blue sky. All that black ash section of the mountain between the snow and tree lines was entirely whitened, and the pines everywhere were glistening with their rapidly melting loads.

So potent are the charms of the vigorous outdoor mountain life, that I resolved to give up all my plans for municipal sight-seeing in Mexico in favor of a systematic attempt on Ixtaccihuatl. A few days after my return from Popocatepetl I was back again in Popo Park preparing for "The Woman in White."¹

Ixtaccihuatl seems rather generally to have foiled the attempts of those who have tried to reach its summit. I have been able to get positive knowledge of some four or five who have succeeded, and perhaps there are as many more unrecorded ascents. I am inclined to think that some who have been near the top have allowed it to be thought that they actually gained it, by not denying rumors to that effect, and especially is this true of the natives; for while they profess to have climbed the mountain, their services as guides seem to fail entirely shortly above the snow line.

Dr. W. Freudenberg, of the Geological Institute of Mexico,²

¹ So called from the fancied resemblance to a recumbent human figure; hence the local nomenclature designating "Head," "Breast," and "Feet." — ED.

² There are several good scientific papers in German on Ixtaccihuatl and Popocatepetl. In English, perhaps the most complete account of the mountains is to be found in a monograph by Oliver C. Farrington, Ph. D., entitled "Observation on Popocatepetl and Ixtaccihuatl." This is published by the Field Columbian Museum of Chicago under date of April, 1897. Mr. Farrington's observations were particularly valuable on the side of petrography. I think there can be little doubt that Ixtaccihuatl is an ancient volcano in process of erosion. When seen from a distance, one is inclined to imagine the bedding lines of the rocks in the Cerro Gordo produced to meet a similarly produced set of bedding lines from the "Head," the point of meeting being at a possible crater over the present saddle between the "Breast" and the "Feet." The original summit was then perhaps 1000

is one of the few who have been on the summit. He was the first to ascend by way of the south arête, which leads up from the pass facing Popocatepetl. While in Mexico City I met Dr. Freudenberg and heard his description of his trip, which led me to select his route as the one I should attempt.

It was a gorgeous morning when we (four Mexicans and myself) cleared Popo Park and set out upon the long straight stretch of dusty road that leads upwards, at a constant and gentle grade, towards the foothills of the mountains. At this season the country here impresses one as being very dry. Wild flowers are very abundant, and add much to the attractiveness of the scenery. To the westward of Popo Park the wild flowers are even more plentiful; every "barranca" and hedge is a line of brilliant color. The streams of this region (and indeed the whole Mexican Plateau) have a habit of running in narrow ravines (called "barrancas"), with earthy sides so steep that it is difficult to find places where they can be crossed. In almost level country one comes upon these barrancas suddenly, there being no anticipation of their presence by sloping ground on either side.

At the base of the foothills the fields stop and the forest is entered. Further up our road joins the one from Amecameca, which leads over the pass between Popocatepetl and Ixtaccihuatl. It will be noticed on the sketch map that our route as far as Paraja was the same as our route to Tlamacas. Paraja consists of two or three miserable shanties, that serve as sort of wayside inn, where the Mexicans like to stop and drink things out of bottles. Above here caravans of burros are met, each animal carrying a railroad tie strapped to either side, while one end drags upon the ground. There is something both picturesque and comical about these small animals with their large ears and complacent faces. At Paraja the ties are transferred to carts for the remainder of the descent.

feet higher than Popocatepetl is now. Dr. Freudenberg calls Ixtaccihuatl "the ruin of a volcano." The existence of glacier-scooped valleys and glaciated rocks on Ixtaccihuatl points to the greater extension of the ice-capping in former times; and the relative absence of these indications on Popocatepetl would place its elevation in post-glacial times, long after Ixtaccihuatl had ceased to be active. Dr. Freudenberg's observations, as well as my own, were confined to the southwest quarter of Ixtaccihuatl, and to an even more limited portion of Popocatepetl, and it seems likely that the explorations of others have been as limited.

A little beyond the summit of the pass we spent the night in the huts of Pallegallinas, which I found more comfortable than those of Tlamacas. There was a fine moon that night, which illuminated the snows of Popocatepetl in a most impressive and majestic way. All three nights of this excursion were fine, with brilliant moons, and all four days were clear, and even in midday the summits were free from their customary capping of cloud.

The saddle between the mountains consists of rolling hills entirely free from trees. The surface is made up largely of black volcanic ashes, probably derived from the eruptions of Popocatepetl. Sufficient grass grows upon the ash to make good grazing ground, and this is used to good effect by herds of cattle. The open landscape makes easy going. One of the Mexicans, Fernando, had claimed to be sufficiently familiar with the mountain to guide us, and at the start I was giving him entire lead; but in time his course fell entirely too far to the west of the Cerro Gordo to suit me, and after going a sufficient distance in that direction to become convinced that his intentions were not in accord with mine, I called a halt and, with the aid of pencil and paper and the sign language, learned that he proposed to take us approximately along a contour to a point almost west of the summit, where there is a comfortable cave well known to the native ice-cutters and those who have attempted the mountain from Amecameca — the cave of Cholula. This was not ascending by the south arête. After a study of that arête and the Cerro Gordo through the glass, I could see no reason for changing my plan, and therefore headed the party about and recrossed the divide, as shown on the sketch map. The northwest slopes from the Cerro Gordo would have been possible on foot, but not for horses; whereas the southwest slopes seemed to offer footing for the animals to a considerably higher altitude. It was necessary to pack our camp stuff to the greatest possible height that night, in order to leave a minimum distance for the following day's climb to the summit and return.

After crossing the beautiful little vale of the Lindt Kar, it required some searching to find a way for the horses, since the grassy slopes here alternate with cliffs. Finally we skirted the base of the talus slopes from the Gordo (much to the distress of the Mexicans, who seemed to think we were in danger of falling

stones), and reached a point a few hundred feet below a conspicuous saddle (No. 1), which was clearly the end of all climbing for the horses. There was a fair camping spot here; but it was early in the afternoon and I was not satisfied to stop, so I had the men put in the rest of the time in carrying our stuff to a point just beyond the saddle at the base of the northwest cliffs of the Gordo. Water had to be carried up all the way from the Lindt Kar, and firewood from a point somewhat higher. This camp was over 14,000 feet above the sea. The rocks and slope below us were covered with snow (which is not usually the case), and we had difficulty in finding a place to lie down.

Never have I slept in such a romantic spot. The night was very cold and still. Through it all, the moon hung over the landscape before us, illuminating everything with its magic light. The Mexicans (in spite of their light clothing and single *serape*) seem to sleep through everything, but I was too excited and too high in the air to sleep much. I lay under about six blankets on a slab of rock with one of the men. The cliffs of the Gordo overhung us a little and then went straight up, so that the heavens to the southeast of the zenith were entirely shut off. Our slab was resting directly on the slope, which descended at an appalling angle to a place where it forked out between some towers of rock and seemed to pitch down into a great gulf. Beyond this gulf other crags and pinnacles were silhouetted against the lighter moonlit plains, and these disappeared upwards with a blending across the horizon, where an indistinct line of light indicated the City of Mexico.

At half-past two I began to prod the men, but we (Andreas, Fernando, and myself) did not succeed in getting under way until four o'clock, when the moonlight was almost as serviceable as daylight. The most monotonous part of the climb came first, the slope along the Gordo. This was in bad shape and required great care. The fine decomposed rock was held together by thin snow, now turned to hard ice, and it was so difficult to form steps in the mixture that at times we slid ten or twenty feet downwards. As we emerged upon the neat little saddle (No. 2) between the arête of Ixtaccihuatl and the Gordo, we looked upon a wonderful scene. The eye followed down immense crags on the east face of the mountain and eastward across the great

plains, where the sun was just beginning to lighten the horizon with the first tints of daylight, and against this glow, standing out sharp and clear, was Orizaba, the highest of the Mexican peaks, ninety miles distant in an air line. Later in the day the edge of the Mexican Plateau could be distinctly made out, for all the low country beyond it was covered with clouds, the billowy tops of which seemed to be about on a level with the plateau itself.

The first portion of the arête presents no difficulties. There is always a way about the various crags, for the most part on their east side. In places here it is necessary to descend as well as ascend, so that elevation is gained slowly, and it was a source of discouragement that it took so long to top the Cerro Gordo. When we came to the place where there is a marked steepening of the ridge, both Mexicans announced with a certain air of surety that we had reached our highest, for the way just ahead was impossible. While I inspected the impossible rocks, they regarded me with discouraging smiles that one does not associate with a Swiss guide. I became attached to these Mexicans who accompanied me upon the mountains, but one must not expect too much of them. At this point there was a couloir that amounted almost to a chimney. A little way up it was choked with a large overhanging boulder. I figured that three (supposing them to be fellows who were in for the sport) could mount it by climbing up on each other and drawing the last man up on the rope. As it was, we overcame the difficulty by a considerable traverse on the west slope, which led us to some rocks by which we again gained the ridge. All along here the eastern side of the mountain consists of a series of tremendously steep couloirs separated by the boldest possible arêtes. These subsidiary arêtes branch out from the main ridge, upon which we were, and descend in jagged and fantastic forms between the great gulfs they separate. Dr. Freudenberg speaks of these gulfs as "kars," that is, basins rounded out by formerly existing glaciers.

It was not until quite near the summit that we trod upon snow. Note from the photograph that the "Feet" of the White Lady, i. e. the south end of Ixtaccihuatl, is a triple summit. The first of these is a beautiful little sharp point of snow. The second is rounded and a little higher, and the third summit

more rounded and still higher, with the grandest possible cliffs at its northwest corner overlooking the glacier. At 11.30 in the morning I reached the middle one of these three summits, and that was as far as I got. The third point could not have been a hundred feet higher, but I estimated it would take perhaps an hour to reach it in the soft upper snow. I was extremely exhausted, having taken no breakfast owing to a fear of consequent nausea. I experienced the same difficulty in breathing that I did on Popocatepetl.¹ The taking of three photographs exhausted me even more than the climbing, and as for the hypsometer, I simply could not make the thing burn. I carried an aneroid that reads to 15,000 feet only.

The "Breast" or highest point of Ixtaccihuatl was still separated from us by the depression occupied by the great western glacier. It was evident that I could not reach it, for I should not have the strength to return to our camp at the Gordo, and we were not prepared to spend the night on or near the summit. On our return to the Gordo I found that the two Mexicans we had left behind had moved the outfit down to the spot where the horses had been discarded. This proved to be a more comfortable place to sleep. It commanded an inspiring view of "Old Popo" from a direction in which the truncation of the cone by the crater is well seen. From here to Popo Park was an easy day's journey, going directly by way of Paraja.

Thus the route going and coming by the south arête proved

¹ My experience with high altitudes in Mexico was one of gradual physical adaptation. On the first of January I landed at Vera Cruz, having lived for the eighteen preceding months at sea-level. On January 9 I attempted to ascend Orizaba in company with Mr. Hubert Merryweather of Cincinnati. In a cave (altitude about 13,000 feet) where we spent the night I was taken actively sick, and since I had not improved after sixteen hours of it, I gave up all thought of going higher. No doubt the conditions were accentuated by the unwholesome food it was necessary to eat. Meanwhile Mr. Merryweather reached the summit (18,200 feet) without any discomfort and in magnificent weather. He obtained a hypsometer reading on the top which, taken in connection with preceding and following readings at known railroad heights at the base, and corrected for temperature only, gives the mountain a height of 18,361 feet (limit of error may be 200 feet).

On the other mountains I became adapted to normal living up to about 15,000 feet. I invariably ate next to nothing on the day in which we made the dash to the top, for I found that symptoms of nausea were pretty sure to follow the taking of any food. Under these conditions, I always returned to the camp very limp and exhausted, but after a night's sleep could usually begin again to assimilate food.

too long for one of my endurance. Heilprin had attempted the summit by the western glacier, but was held up by crevasses when at a considerable elevation. The slopes pitching down from the main summit just north of the glacier seemed to offer the only remaining course on this side of the mountain. These slopes, as seen in profile from the south, incline at an angle of about forty-five degrees, and they round over to the summit without cornices. A study of this section with the glass seemed to show that all the protruding cliffs could be turned at their ends. This was the route I was bent on trying on my next attempt; but, as it turned out, I did not even get a chance to set foot anywhere north of the glacier. This was due to a misunderstanding with Fernando and my own slim acquaintance with the Spanish language. I had my plan made clear to him through an interpreter before leaving Popo Park, but something went wrong. As soon as we struck the snout of the glacier, he at once began to lead up its south edge. Talking with him was so difficult that for a while I let him alone, thinking that he must have good reasons of his own for this course, and that he would probably cross the glacier to its north side when higher up. But instead of this, we kept more and more to the south, and finally passed off the glacier directly at the toe of the grand cliffs running up to the south peak, and entered upon a most villanous snow-slope leading directly up to the south peak itself. Either Fernando had some superstitious fear of the main peak, or else he thought we would be satisfied with the south peak. The mistake was likely mine, for allowing the Mexican to lead at all.

In this second expedition to Ixtaccihuatl I was joined by two companions whom I met in Mexico City, Mr. E. P. Gilchrist of New York and Señor Manuel M. Bárcenas of Guatemala. We had very bad weather from the first. On leaving Popo Park the sky was overcast with cloud that enveloped the mountains down to within 1000 feet of their base. There was some recompense for the bad weather in the wonderful massing and coloring of the clouds, especially at sunrise and sunset. From the higher altitudes these effects were positively weird, the scenes appearing not so much of this earth as of an entirely fanciful one. Our route was through the valley to Amecameca, and then by a trail up the foothills directly west of the mountain to the cave

of Cholula, where the night was spent. In the morning we made the usual early start, and proceeded on horseback for an hour or more up the mountain towards the snout of the glacier.

Although Mr. E. P. Gilchrist is fairly familiar with Spanish, we were not aware of Fernáudo's intentions until it was too late to mend them. The slope on the south peak was very steep, and the angle seemed to increase in all directions above us. The cliffs (now on our left) seemed to peep out of a mountain made of pure snow; there was no chance of mounting by way of them. After trying out this slope for a few hundred feet, the Mexicans made it very clear to us that they were not going farther. They had been doing all the step cutting, and with implements not so handy as a Swiss ice-axe. After considerable remonstrance and a careful examination of our position, we came about to their way of thinking. The slope was ice overlaid with about five inches of soft snow. The best steps the men could make (consistent with any sort of speed) were mere niches, hard to hold on to. A glissade would have been very dangerous. I do not see how this slope could have been in a worse condition for climbing. An ice-axe and more air to breathe would have been a help; but as it was, we gave it up. My two companions made a forced ride and reached Popo Park late that night, but I preferred to remain over at the cave, and descended leisurely upon the third day, which proved to be a dull and foggy one. The weather during our trip was the precursor of a general storm, that lasted for two days following. A light snow fell all over the country surrounding, which is very unusual for these parts.

Fine weather followed, and again I was in the saddle, riding towards Amecameca and the coveted mountain top. Many gayly dressed peasants were also heading towards Amecameca, for a festival was in progress there. This time I was alone except for the Mexicans; these evinced more interest in the doings of the town than in the caves of Ixtaccihuatl.

The ascent up the west flanks of Ixtaccihuatl is more picturesque than that up the Puebla road to Tlamacas. The outskirts of Amecameca are attractive, — fields and gardens with flowering borders and the quaint adobe buildings of the natives. There is a burro trail up the mountain as far as the cave of Cholula. Where the real ascent begins, the trail plunges into a forest with

rank undergrowth, and in the way are old gnarled trunks about which the horses wind. A little farther and our caravan entered a veritable gully, the bushes meeting overhead and our pack-mule almost scraping his load against the sides. In Mexico it is quite common for a road to be sunk into a ditch with vertical sides.

At an elevation of about 12,500 feet the trail winds up the less steep side of a bold knob I called the "Bee-Hive." On the south this knob has a perpendicular face, and on one side are numerous pinnacles and grotesque rock forms, among which I spent several hours. The Bee-Hive is easily ascended, and from its top there is a view of a fine precipice, which exhibits to a marked degree the columnar structure of the old lava. Higher up, the horses pass along the crest of a narrow ridge with a huge grassy amphitheatre on one side and a beautiful valley on the other, at the head of which the Cerro Gordo appears to fine advantage. On quitting this ridge, we dropped over its south side and followed the base of a series of low cliffs running at right angles to the mountain and everywhere full of caves. Many of these would make fair shelter, but the Cave of Cholula¹ is the best of them all.

At four o'clock in the morning I left the cave and proceeded on horseback over the same rough ground crossed on the previous trip. As soon as the horses were left I went ahead, and paid no attention to suggestions from the Mexicans. By daylight we were in the V-shaped depression through which the water from the glacier discharges and where the two moraines come almost together. Here I climbed directly up the north moraine, and followed up its back to its termination against a cliff, the top of which it just reaches. Then followed a long slope of mixed snow, ice, and loose rocky material, where the footing was difficult to find, and by degrees this gave way to the pure snow-slopes of the upper part of the mountain. A stamp of the foot at each step would break the surface crust and give a fair footing in the underlying snow. I felt satisfied that had we reached this slope

¹ Altogether I spent five nights in this cave, and I was more comfortable there than in any other camp on the mountain. It has a fairly level floor, and is deep and roomy, varying in height from three to seven feet. Water and wood are close at hand.

four or five days earlier, we would have had no better luck with it than with the one on the south peak, for then the surface snow would have been as soft and powdery on the one as on the other. The slope I was on had the same icy surface about six inches below the crust. As in the other climbs at this altitude, I found better progress possible with rhythmic breathing and climbing, avoiding the continual turning to take in the panorama. I found it a good way to count off a certain number of steps and then sit down and breathe hard, and in the short pauses between steps I could lean with the hand upon the slope, which was steep enough for the purpose.

The highest exposed cliffs might be called the "Eyelid Cliffs," from their resemblance to a closed eye, when seen at a distance; they are fine rocks, isolated all around by snow and festooned with icicles. When I arrived at these cliffs, both of the Mexicans were nearly out of calling distance behind me; and although they had my apparatus, I was too anxious to reach the summit to wait for them, and in fact neither of them reached the top. As the grade lessens and rounds over to the top, the snow crust disappears and the snow becomes soft. At eleven o'clock I reached the top entirely alone, wading in snow knee-deep and blowing like a steam engine. The day was perfectly cloudless everywhere, but there was a cold, stiff wind, from which I had been sheltered on the west face until within a few feet of the top. The summit consists of three elevations, all in pure white snow without break. The lowest, or southeastern one, presents a cornice on the side of the glacier. On nearing the top this point appeared to be the highest, so I climbed out to it first. The other two tops are so nearly of the same height that the eye cannot detect any difference. Together they make a rolling area perhaps as large as a ball field. The northern point prevents the "Head" of Ixtaccihuatl from being seen from the southern point. In the other direction, the view of the glacier and the "Feet," with Popocatepetl in the distance, is grand.

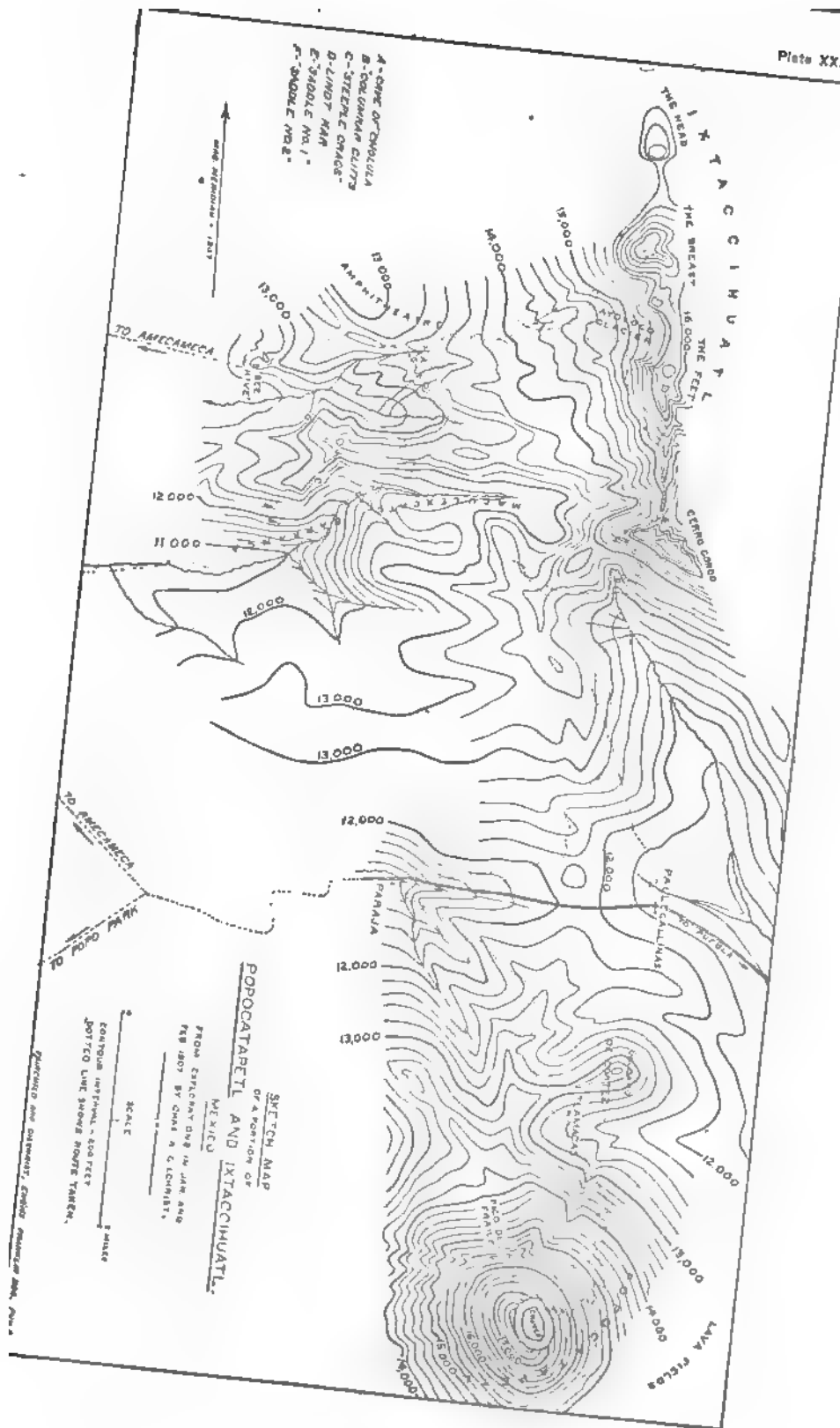
After about half an hour at the top I started down, and very shortly met one of the Mexicans with my apparatus. Here, in a spot rather more sheltered than the very top, I wrestled with the hypsometer for half an hour. The wind kept blowing out the flame, and my fingers were too cold to be of much use. The

air temperature was 23° F. Finally, as the water began to boil, my thermometer broke without apparent cause and before getting the reading.¹ The thermometer was the only one I had.

Upon reaching the top of a coveted summit, a person does not care much how he gets down. Those tired and footsore hours soon pass into oblivion in the memory of a glorious outing with one objective point attained. At the cave was solid comfort, and in enjoying it I first put in fourteen hours of sleep. When I awoke, the two Mexicans who had been with me were giving to the other two an account of our climb in their own language, with many illustrations of the way the señor tackled the snow. By this time I had learned enough of their words to be able to call for a nice little breakfast. The Mexican peons are not the scum of the earth, as many people seem to think, but you must know them to like them.

With fine weather I put in another day and night at the cave, returning in the morning to the glacier to examine an ice cave, and in the afternoon exploring the valley and ridge to the south. On the fourth day I sent the horses and baggage to Popo Park by the way we had come, and myself went on foot to Popo Park by a new route. Just south of the cave is a beautiful bowl-shaped valley, bounded by cliffs and steep slopes. At the upper end are cliffs, over which the water plunges into the valley from a higher level. By following approximately on a contour from the cave and crossing the face of some cliffs, I gained this upper level without much rising or falling. Then following around still on the contour to a point directly opposite the cave, I ascended to the top of the ridge at a point where it is surmounted by a bold crag. I had in mind to follow this ridge down towards the base of the mountain; but a study of it from the crag just referred to was not promising, for a little to the west it forked into two precipitous headlands, one the "Columnar Cliff" precipice and the other an exceedingly bold escarpment, that I have designated on the sketch map as "Steeple Crag." Aware that if these portions were impassable, I should lose much time among them, I turned into the next valley to the south, which heads directly down from the southwestern "kar" at the foot of the Cerro Gordo. But even this was not so easy as it looked,

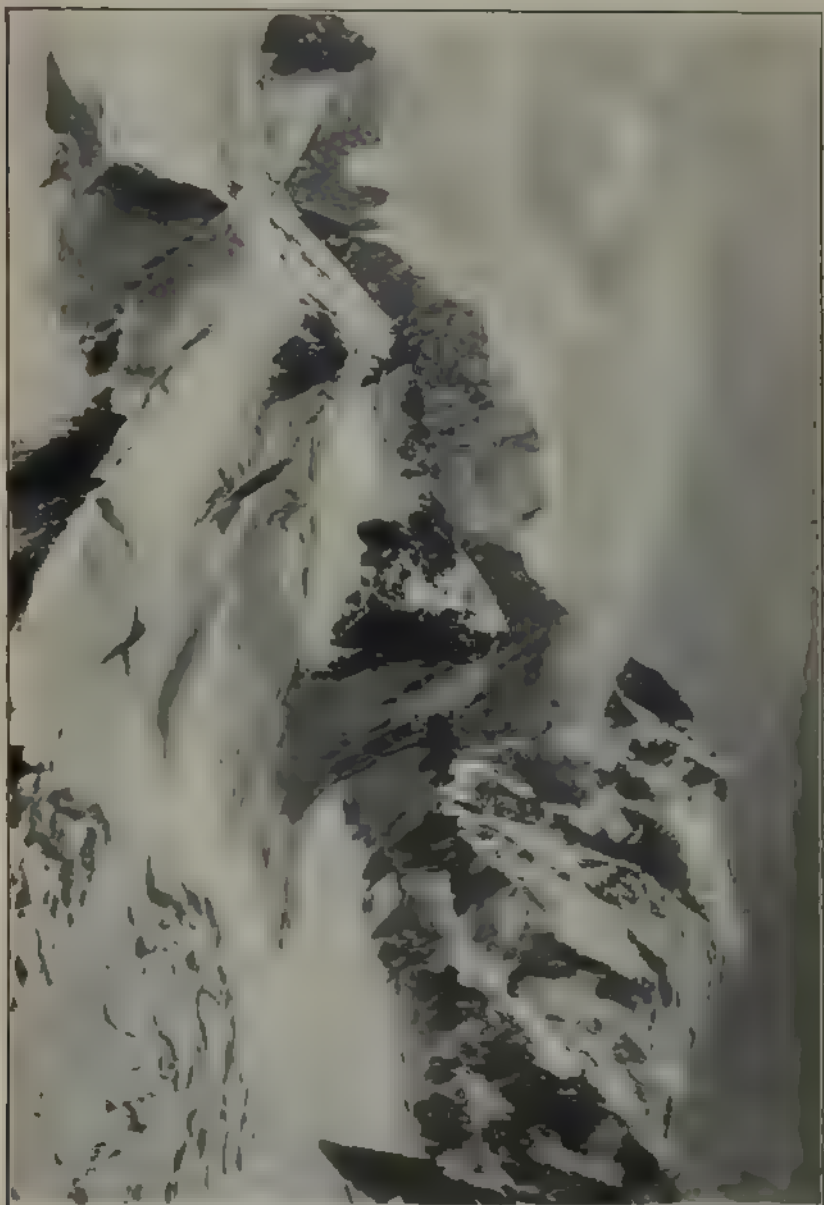
¹ Ixtaccihuatl is probably within 400 feet of 16,500 feet in altitude.



of it, that it is and must always remain one of the first two or three, if not actually the first, in beauty of all Alpine passes.

A chance acquaintance on my journey to Paris was a French physician, who proved to be an alpinist, a fact which would not be suspected, because he is both short and stout. Nevertheless, he had succeeded in ascending Mont Blanc several times, owing, as he explained, to his invariable practice of never climbing so fast as to get out of breath. By practising this golden rule of alpinism he believed that any one could attain great heights. This gentleman dissuaded me from attempting to cross the Col du Géant in the latter part of September, because of the fresh snow, and also because he thought the refuge on the Col would then be closed.

After a stay of one day in Paris, I took the night train for Chamonix on September 25. Perhaps some of you remember in Mr. Whymper's "Guide to Chamonix" his injunction to secure a place in the carriage early so as to be able to sleep; but this advice is no longer necessary, since comfortable sleeping-carriages are now provided. At the station a boy on his way to school at Geneva was being seen off, not only by his immediate family, but also by his cousins and his aunts, and their tearful farewells suggested a journey to distant lands, and showed how restricted travel is abroad. At Bellegarde, in the Jura, the train was changed early in the morning, and here the ground was frosty and the fresh mountain air exhilarating. At Le Fayet a transfer is made to an electric railway which climbs rapidly into the mountains, and henceforth the great range of Mont Blanc, with its dazzling snows and glistening glaciers set against a sky of azure blue, rose before us. Chamonix was reached soon after noon and, as was to be expected, from the fact that there were few passengers in the train, the station, which in summer is crowded with tourists, guides, and hotel porters calling out their respective hotels, was to-day absolutely empty except for a single porter from the Hôtel du Mont Blanc, who had come to meet me; but he made me feel at home by inquiring after my family, whom he remembered from three years before. This hotel, where the previous August I had been unable to obtain rooms, was now about to be closed, and I fancied that the genial landlord, M. Cachat, retained his *chef* a little longer than he



MT. BLANC FROM NORTHWEST RIDGE OF THE DENT DU GÉANT
From a photograph by Vittorio Sella.

intended in order to provide good cheer for his American guest. A stroll through the deserted village showed, to my regret, that both M. Vallot and M. Janssen (of-observatory fame) had just departed. Many of the shops were shut, and the crowd of guides and porters who always lounge outside the bureau of the chief guide were conspicuously absent. Naturally, therefore, I was welcomed by this official, and when I explained my desire to cross the Col du Géant, he assured me that it was entirely practicable. The guide who had taken me up Mont Blanc three years before had become a postman, and could not easily be engaged; but my former porter, Joseph Charlet, and an experienced guide, who had crossed the Col thirty times, were promised for the morrow. To stretch my legs, which were still more used to the sea than to the mountains, I walked that afternoon up to Plan-Praz, taking as a companion my new guide, S. I found him an old man, with a qualification which I did not require,—of knowing English. He had been employed by many well-known alpinists, including one whom he called the president of the American Alpine Club, and whose description I thought fitted our president of 1905. The hot walk in summer up the shadeless gorge to Plan-Praz is renowned, but on the afternoon of September 26 there was no trouble from heat, and, arriving at sunset at its elevation of nearly seven thousand feet, the difficulty was to keep warm. Never had I seen the Mont Blanc range so clearly outlined against the dark blue sky, nor such minute details of topography visible. As the sun sank below the western mountains, the rocky pinnacles and snow-capped summits began to glow with a rosy light, which later turned to an ashen hue. After a few minutes the secondary glow again suffused the summits, and then these rekindled fires slowly died away into the cold gray of evening. While I gazed at this marvellous spectacle, there was a temptation to compare “the Great White Mountain” with our own White Mountains, for only two weeks before I had stood on Mt. Pleasant at sunset and looked at Mt. Washington, but I was forced to admit that no comparison was possible. The moon, now in its second quarter, soon flooded everything with silver radiance, and its kindly light enabled us to descend easily through the dense woods above Chamonix, where I arrived in time to enjoy

the excellent dinner served by mine host Cachat with all the art of the best Paris restaurants.

The next morning was occupied in getting equipment and supplies, for I had come entirely unprepared for Alpine climbing. In determining how I should cross the Alps, my choice fell upon the Col du Géant, because it was a scientific pilgrimage to follow in the footsteps of Horace Bénédict de Saussure, who, in July, 1788, spent seventeen days with his son in a cabin on the summit of the Col, in order to continue the meteorological observations which he had not been able to complete satisfactorily during his short sojourn on the summit of Mont Blanc the previous year. Until a few years before De Saussure's visit, the passage of the Col du Géant appears to have been reckoned impracticable, though there is a tradition that formerly the glacier was less formidable, and that communication was not infrequent between Chamonix and Courmayeur up to the middle of the seventeenth century. As Mr. Whymper remarks, the pass could hardly have been discovered without a number of preliminary explorations and failures, for it is not an obvious pass when regarded from Courmayeur, and its summit cannot be seen either from Chamonix or from the Montanvert. In a photograph taken by Mr. Donkin on the Aiguille du Dru, which is reproduced in Plate XXVI., the Glacier du Géant is seen leading up to the Col at the extreme left of the picture.

On the afternoon of September 27, my guide, my porter, and myself toiled up the well-worn but now deserted path leading to the Montanvert. On every side were traces of the excavations for a railway, which, closely following the bridle-path, will within a year or two replace the mules that for more than a century have been carrying visitors to this most famous of Alpine view-points. Here also we arrived just at sunset, and for the second time, from an altitude of more than a mile, I witnessed the Alpine afterglow on nearer and more distant peaks. To-night this was reflected on the winding river of ice at our feet. The hotel at the Montanvert, crowded to overflowing in the summer, had as its only occupants some surveyors employed on the new railway, and a Cockney family, who had come from "Genevy" to "Chaminy," as they said, to

view the ice-sea. Not believing that the dirty glacier could be ice, the father of the family essayed to walk across it, with the result that he slipped and nearly slid into a crevasse, convincing himself of the reality of the ice by receiving a bruised face and lacerated hands. I was pleased at the solicitude of my good friend, M. Cachat, the proprietor of the Hôtel du Mont Blanc at Chamonix, in telephoning to his colleague here, in order to ascertain whether the guide whom I had engaged was really capable of conducting me across the Col du Géant. Although the answer was in the affirmative, I feel bound to disagree, at least under circumstances involving serious difficulties, but I shall refrain from prejudicing his few remaining years of service by giving his name. The moonlight view of the Mer de Glace that autumn night, when every pinnacle of ice glowed as if phosphorescent, recalled the oft-quoted simile of frozen wave-crests, but suggested their paradoxical occurrence in luminous tropical waters. As the moon sank behind the western Aiguilles, their long, dark shadows were thrown across the glacier, and myriads of faint stars appeared in the blue-black sky.

It had been planned to start before dawn ; but, by quoting the times which various authorities gave as requisite to cross the Col, I persuaded the guides (much against their will, it is true) to postpone starting until daybreak. In view of what followed, I recognize two injunctions of Whymper as wise ones : First, beware of an old guide, and secondly, start early. The Col du Géant is usually spoken of as one of the easiest of the lofty passages across the Alps ; and in early summer, before the crevasses have opened, there is no difficulty whatever. The average time given by Kurz, Whymper, and other authorities is ten hours from the Montanvert to Courmayeur, but our experience showed that this may be much increased by difficulty in passing the ice-fall. Feeling that there was no necessity to start very early, the day was almost breaking when, after a scanty breakfast of bread and coffee, we left the hotel, soon finding lanterns unnecessary. The path skirts the precipitous left bank of the glacier and passes along steeply tilted rock-strata by means of steps cut in the rock, to which iron hand-rails are fastened, the place bearing the name of Les Ponts. Soon it descends to the glacier, which for a considerable distance is smooth and rises

with a gentle slope, so that I was able to contemplate at my ease the wonderful effects of dawn in the ice-world. The deep purple of the sky changed to a steel-blue, the stars paled, and in the east a pale yellow light appeared above the high peaks which border the right side of the Glacier du Tacul. Slowly the yellow gave place to pink, which tinged with warmth the gray rock and the white snow summits far above us. On the Dôme de Rochefort the snow, driven by the wind, of which there was none below, could be seen whirling about like filmy cloud.

We were now passing to the right of the well-known route to the Jardin,¹ which is separated from ours by great masses of rock and gravel forming the medial moraines of the Glaciers du Géant or Tacul and Leschaux, which here unite into a common mass. Meanwhile, as we mounted slowly, it was getting colder, the temperature of the air being 35° F. and that of the glacier 30°. Though the sun had already risen, it was hidden behind the mountain wall, and not until nearly eight o'clock did the orb of day really appear. Even then we were in shadow until the line of sunlight, slowly advancing across the western half of the glacier, reached us, flooding all with light and warmth, and causing an immediate transition from winter to summer.

We had now reached the foot of the famous ice-fall,² after a steady walk of three hours from the Montanvert. This was good progress, and I imagined that we should reach the Col soon after noon. After a brief rest in the sunshine, we began the passage of the *séracs*, finding here the first new snow. I cannot better describe one of the grandest ice cascades in the Alps than in these words of Professor Tyndall: "At the summit it is broken into transverse chasms of enormous width and depth; the ridges between these break across again and form those castellated masses to which the name of *séracs* has been applied. In descending the cascade the ice is crushed and riven; ruined towers, which have tumbled from the summit, cumber the slope, and smooth vertical precipices of ice arise in succession out of the ruin. At the base of the fall the broken masses are again squeezed together, but the confusion is still great and the glacier is here tossed into billowy shapes." To

¹ See upper half of Plate XXVI.

² Seen in lower half of Plate XXVI. halfway up the glacier.

pass this ice-fall, the route now-a-days followed is along the left bank of the glacier near the isolated rock called "Petit Rognon." We were here roped together, and to my surprise, it was the porter, Charlet, who took the lead, leaving his partner, the hero of thirty crossings, to bring up the rear. To find a passage through the labyrinth of ice seemed well-nigh impossible. From the clefts between the *séracs* we could see no further than can the occupants of a boat in the trough of a great wave. It was frequently necessary to scale their summits when their flanks could not be turned, and sometimes this labor was in vain because a survey from the top showed further progress in that direction to be impossible owing to some great crevasse which separated the ice pinnacle from its neighbors beyond. Then it was necessary to descend the miniature mountain, which had been climbed by the tedious method of cutting steps, and try to advance in another direction. The newly fallen snow, here present in considerable amount, much increased our difficulty, not only by hiding the smaller crevasses, but also by making the approach to all of them dangerous; and it was this circumstance that gave me an unpleasant experience. A crevasse barred our passage; Charlet leaped across, and after cutting a foothold on the further side in the snow and ice, he called on me to follow. The guide in the rear gave me more rope and I jumped, but my feet slipped from the sloping edge, and down into the crevasse I fell. Fortunately its walls narrowed and caught me in their vise-like embrace before the rope became taut. This was indeed fortunate, for it seems doubtful whether the sudden jerk on the rope would not have pulled the men off their feet, or, at least, the old guide, who frequently allowed the rope to become slack and trail under his feet. Luckily I did not lose my ice-axe, and its help and some judicious pulls on the rope extricated me with only a few bruises. My strongest impression was the intense cold that prevailed in the icy cavern, from which, although encased but a few minutes, I emerged nearly frozen. Remembering also a similar fall down an ice-slope on Mont Blanc, I should say that these accidents occur too suddenly to produce fear, and the necessity of using your wits to prevent the over-zealous guides from cutting you in two by hauling on the rope defers fright until

after the rescue. It is fair to say, however, that my nerves were a good deal shaken, and this incident was a bad preparation for the strenuous work remaining.

Several more hours were spent among the *séracs*, and the afternoon was well advanced before we reached the top of the ice-fall. There, during a richly earned rest, we experienced the anomalous sensation, often remarked on the high mountains, of broiling in the sunshine while seated in the snow. There was not a cloud in the sky and no possible shade from its pitiless rays, and, though we took off our coats, our faces and hands were blistered by the direct solar rays and by the heat waves reflected from the snow. I was curious to ascertain whether this sensible heat would be shown by the thermometer, but found that the air-temperature was little above that of the snow, namely 32°, while a thermometer in full sunshine rose barely to 40°, showing that it was the actinic rays and not the heat rays which affected our bodies most. My men lunched heartily on the provisions which they had brought, but I could eat nothing, and even the cold coffee, which had proved the best drink in former ascensions, was this time unpalatable.

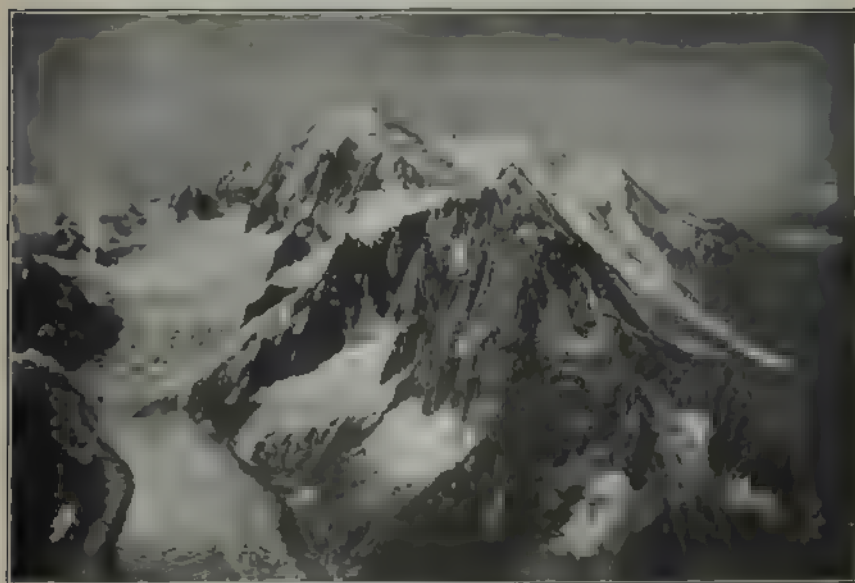
We now began the long climb to the summit of the Col, which was pointed out as a goal; although, as I found to my disappointment, what we saw was not the real crest, and many pseudo-summits had to be surmounted before the Col was reached. With the greater steepness of the slope the fresh snow became deeper, so that our leader sank nearly to his knees; but the real obstacles were the crevasses, which lay directly across our path in seemingly endless numbers. Most of them could be crossed on the snow-bridges, and although more than once these gave way under my weight, the taut rope prevented a repetition of the previous accident.¹ The sun, already sinking, still shone like burnished silver in a deep blue setting, as we approached the top of the glacier. On the opposite side

¹ I ought to say that soundings with an ice-axe by our careful leader were always made when this hidden danger was suspected. One or two yawning crevasses I declined to cross preferring, in spite of the grumbling of the guides, to go around them by a circuitous route. I must here express my appreciation of Joseph Charlet. Strong and active, skilful, resourceful, and prudent, he combines all the qualities of a good guide, and should have inspired the entire confidence of his *voyageur*.



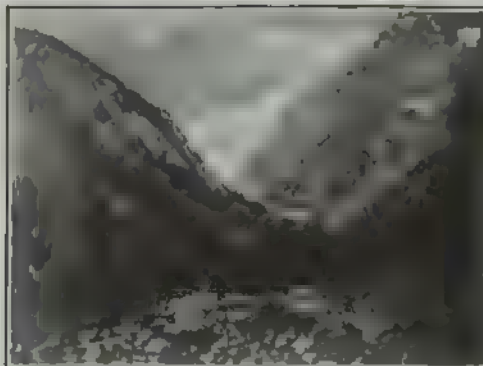
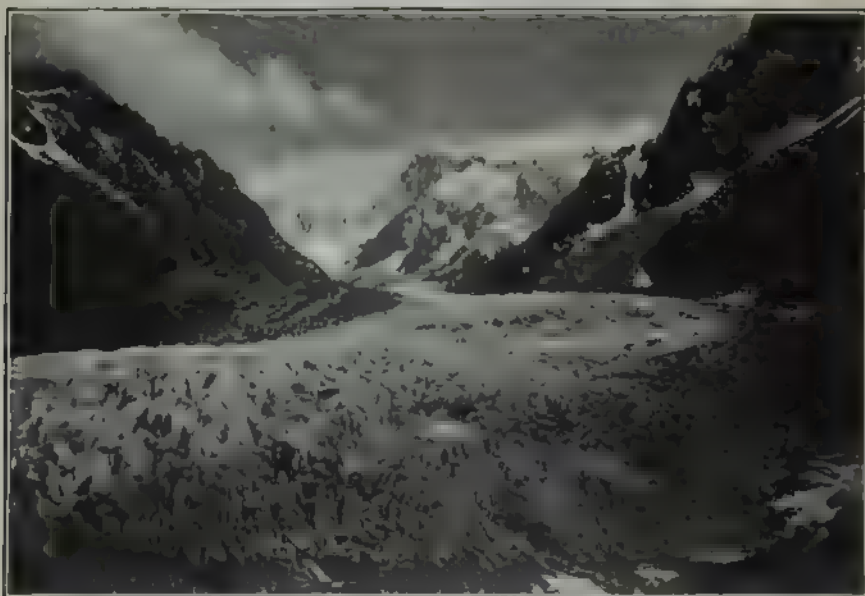
A GUILLE DU TACUL AND THE GRANDES JORASSES

From a photograph by N. D.



MT. BLANC FROM THE A GUILLE DU DRU

From a photograph by W. F. Druce



DENT DU GÉANT
MER DE GLACE
MT. BLANC FROM ABOVE COURMAYEUR

to the rock called La Vièrge, close to which we passed, rose the mighty pinnacle of the Géant, considered inaccessible until it was climbed in 1882. On the right, Mont Blanc and its satellite, Mont Blanc de Courmayeur, showed their precipitous southern faces, and presented a totally different aspect from that with which I was familiar. Probably nowhere else can such a near view be obtained of the whole mountain.

The twelve hours' hard work were telling on my untrained physical condition; but, worse than that, I had begun to suffer from mountain sickness and was faint from lack of food. Our halts had become more and more frequent, and during one of these, with great effort, I unpacked my camera and photographed the guides with the Dent du Géant towering in the background.¹ A few minutes later we passed under the shadow of a neighboring peak, and instantly the air became cold and an icy wind chilled us to the bone. My men begged me to hurry, if we were not to remain on the Col all night, and very soon we stood on the dividing ridge, eleven thousand one hundred and forty feet above the sea, gazing at a most extraordinary scene, for the snow and ice world lay behind us, and in front was semi-tropical Italy. The rocky precipice down which we were looking showed scarcely a vestige of snow, and ended seven thousand feet below in the luxuriant valley of Aosta. There is a small stone hut on the edge of the glacier, probably not far from the site of De Saussure's cabin, which has been honored by the sojourn of Queen Margaret of Italy. We did not stop here, but descended a few hundred feet to the Rifugio Torino, a large stone structure, that was still open. The guides, who were evidently tired, drank tea and urged me to do likewise. This my stomach refused, and I noticed that the same action on the part of the men was only delayed. My anxiety was to get off the rocks before daylight completely failed, for it is an unusual and hazardous feat to leave the Refuge at dusk. The sun had already set, and a magnificent panorama stretched before us which, in my exhausted condition, I could not adequately appreciate. It must, however, have been similar to that described by De Saussure on the last evening of his stay, one hundred and eighteen years before. The weather was calm and

¹ See Plate XXVII.

mild, the summits which dominated us and the intervening glaciers glowed with color, while the moon, high in the sky, shed a mellow light over all. Above the eastern horizon, where the pink had given place to gray, reared the characteristic pyramid of the Matterhorn and the range of Monte Rosa, now justifying that name by its coloration, and to the southwest, outlined against the yellow sky, were the more sombre Alps of Dauphiné.

But no time could be lost in enjoying the scene, for twilight was at hand, and the long and steep arête demands care lest dislodged stones or a false step precipitate one to the adjacent glacier. In proportion as the density of the air increased the symptoms of mountain sickness diminished, and my spirits rose correspondingly. Long before we reached the mule-path at the Mont Fréty inn, then closed for the season, the darkness would have been complete had it not been for the moon. I had eaten practically nothing for twenty-four hours, and realizing that, at this season, the hotel at Courmayeur would be locked up for the night before we arrived, I despatched Charlet to order hot soup, and bring a carriage, if possible, to the foot of the mountain. He started on the run, and soon disappeared in the forest of chestnut-trees which clothe the foot of Mont Fréty. Through the thick growth my guide and I descended more slowly, finding a lantern necessary to keep the path. At Entrèves, the little village two miles from Courmayeur, Charlet met us with a carriage, and we reached the Hôtel du Mont Blanc at Courmayeur by ten o'clock, having occupied seventeen hours in coming from the Montanvert. The men said that they had never seen the glacier so bad, but whether this admission was intended to recompense me for my exertion, or to prevent their having to return over it, is uncertain.

At any rate, I decided to let them accompany me to Martigny the following day, a journey accomplished mostly by carriage down the Italian and Swiss Val Ferret, although the Col de Ferret must be crossed on foot. The Italian Val Ferret lies at the base of the Grandes Jorasses, and from these and other peaks glaciers extend almost down to the road itself. The difference in scenery between it and the parallel valley of Chamonix consists in the more rugged nature of the Italian valley and the absence of snow-clad upper slopes. The last portion of the



MT MUMMERY AND THE BLAEBERRY PEAKS FROM STATION 18
From a photograph by the Dominion Topographical Survey.

route from Orsières is down the Great Saint Bernard highway. On the morning of the third day my men took leave of me at Martigny, in order to return to Chamonix by the electric tramway. Charlet presented his book for another recommendation to be added to the one which I had written in 1903, and it was only then that I understood that his inability to read was the reason why he had not been advanced from a porter to a guide. S. explained that he did not carry his book any longer, because he was about to retire from the company of guides on account of age, an action of which I could but approve.

The First Ascent of Mount Mummery.

BY ROBERT WALCOTT.

Read December 11, 1906.

To combine the ascent of an unclimbed peak of importance with two weeks' camping in the Rockies of Canada was the motive that led me, with W. Rodman Peabody of Cambridge, and Samuel Cabot, Jr., and I. Tucker Burr, Jr., of Boston, to drive a pack-train into the mountains; for the editor of this journal, who kindly furnished me with valuable assistance of all kinds, had suggested that Mount Mummery, the most accessible high summit on the Blaeberry Valley watershed, was yet unclimbed, and we thought the excursion to it might well be combined with the circuit along the head-waters of the Middle and South Saskatchewan rivers and over Howse and Bow passes. Professor Fay had been one of the British-American climbers whose trip in 1897 is described in "The Headwaters of the Bow," written by Mr. Charles S. Thompson for *APPALACHIA* of March, 1898, and in "The Ascent of Mount Lefroy and other Climbs," described by Mr. Harold B. Dixon for the "Alpine Journal" of May, 1898. Detailing the view from Mount Gordon, the latter says: "Bearing slightly north of west a fine double-headed snow-peak is visible. Large glaciers pour down its east face. We called it Mount Mummery."

This glacier, according to the map of Professor J. Norman Collie, — the only one covering the country we were to traverse, — discharges into Blaeberry Creek, which, in turn, after thirty

miles, flows into the Columbia River near the little Canadian Pacific station of Moberly. Up this Blaeberry Valley once came the Kootenai Indians to barter pelts with the traders who beyond the Divide followed the Saskatchewan from Edmonton and met them on the pine-grown flats still known as the Kootenai Plains. Howse was the man who made the pass at the valley's head known to the Northwest Fur Company about 1810, and, since it is but 4800 feet high, it vied in favor for many years with the more northerly Athabasca and Yellow Head passes as a route across the mountains to the Columbia River. After this active company was absorbed by its older competitor, the Hudson Bay Company, the pass long remained unused, and apparently forgotten, until the pioneer packer of the Banff district, Tom Wilson, crossed it alone and on foot in 1882, on behalf of his chief, Major Rogers, then in search of the best location for the projected transcontinental railroad. Wilson has made many trips through these mountains, but never since, so he says, has he "carried so great a load of doubt and so little grub and blankets." He had used up his food before he came out at Moberly.

Again in 1887 Wilson brought two men hunting in the valley, this time with horses. Thereafter ten years elapsed before Messrs. Collie and G. P. Baker, of the British Alpine Club, found the lower valley blocked by fallen timber and a forest fire, and on September 5 were led by their energetic packer, Bill Peyto, up 4000 feet and over the high pass, 6800 feet, thereupon named Baker Pass. Three weeks later, when Peyto again crossed it, — this time in a snowstorm, with Mr. Walter D. Wilcox, — there were two or three feet of snow underfoot. A photograph of the pass then taken appears at page 194 of Wilcox's "Rockies of Canada."

As neither Bill Peyto, Tom Martin, or Jack Otto knew of any subsequent improvement in the trail, we decided on the longer route up the lovely valley of the Amiskwi, and started from Field on the Emerald Lake road on the 2d of August, 1906. We left the road after a few miles, but the trail for some time stayed in the tall woods and continued good, for Mr. Arthur O. Wheeler, topographer of the Department of the Interior, had been triangulating down the valley in 1905 and 1906,

and by his courtesy this article is enriched with one of his excellent photographs of the Mummery Range. Our packers, Jack and Clausen Otto, had been with him, and were therefore thoroughly familiar with the country. What we gained in travel owing to following the Canadian Survey, we lost in trout, for the fishing, usually good, appeared exhausted by our diligent predecessors.

No fire has thrust its rusty fangs into the balsams and spruces of this valley, and the omnipresent slides from these limestone and dolomitic Rockies are here not fresh, but covered with a young growth, making light green stripes upon a background of dark olive. As the trail crossed and recrossed the clear shallows of the swiftly running stream, a brook would come tumbling in from one side or the other, and through the openings made by it, great mountain masses, without conspicuous summits, swelled to the skyline.

At other times we were left to endlessly interesting discoveries of how similar, with a difference, were the western representatives of our chickadee (*Parus rufescens*) and song sparrow (Gambrell's), winter wren (*Vigorsii*) and snowbird. We are here at the meeting-place of Arctic, Pacific, and Rocky Mountain forms, and noted the many differentiations. The belted kingfisher seemed the one constant quantity with which we were familiar, and the water ouzel quickly became so. Blueberries abounded, and lovely dryas and pyrola grew along the path.

The pack-train too was a constant joy, Jack alternately finding fords and from the end of the train launching stones, sticks, and profanity at the ponies disposed to stray from the lead given by his black mare. With us as with us humans, warning and discipline seldom last the approach of the next temptation, made manifest by patches of sour grass or tundra.

So the ponies who
known warblers
chattered by
"bonghten"
made five
blue,

Early in the afternoon of the second day, we ran the north-western brook to its springs in the grassy plateau of Baker Pass, much resembling a Colorado "park," and put the ponies to a good canter till the spruce closed in again, and, beneath the moss, we could hear the gurgle of a brook on the western watershed.

On a delightful lawn we camped, and adventured a plunge in a natural basin of the Pass brook, cold indeed, but not more so than one which the delay of our Canadian Pacific express had given us time to enjoy in the marvellous clearness of Lake Superior. During the day we waited here for Clausen Otto to bring up the two Swiss guides, Christian Kaufmann and Gottfried Feuz. Meanwhile, we climbed the steep terrace north of us, and found ourselves on a high flat plateau that stretched by an easy gradient to a sharp nub of rotten rock, from which the ridge ran east a mile or more to Mount Habel, in the glaciers of which heads the eastern fork of the Amiskwi. From this ridge we looked down across the glacier filling the next northern valley, that also drains Blaeberry-wards. Beyond it rose Mount Collie, steep on this side, though to the east, like Habel, sloping at a low angle to the great Waputik ice-field, which here makes the continental watershed. On this treeless plateau a vain search for water to wash down our lunch brought us at two o'clock to a brook-bed we had spied out from below. Alas, it was as dry as we, and even while we called on it to flow, a drowsy murmur in the distance developed to a pouring sound, and made us fear that we had reached that stage of thirst delusion we read about in desert travels. A moment later a jet of water leaped from the cliff above and splashed between our feet! A photograph of this Mosaic gush shows a snow patch at its head and a long course of snake-like parallels, between which a harder outcrop series stored the melted snow-water till it could overflow the lower ends. Such was the miracle.

The next day we climbed one of the ridges that form the mass of the Blaeberry peaks, and with Christian and Gottfried scanned the imposing mass of Mummery which dominated the valley below us, rising easily the most conspicuous of a mass of snow-peaks that showed at the head of the fine Mummery Glacier. Viewed from here, the glacier above its steep ice-fall

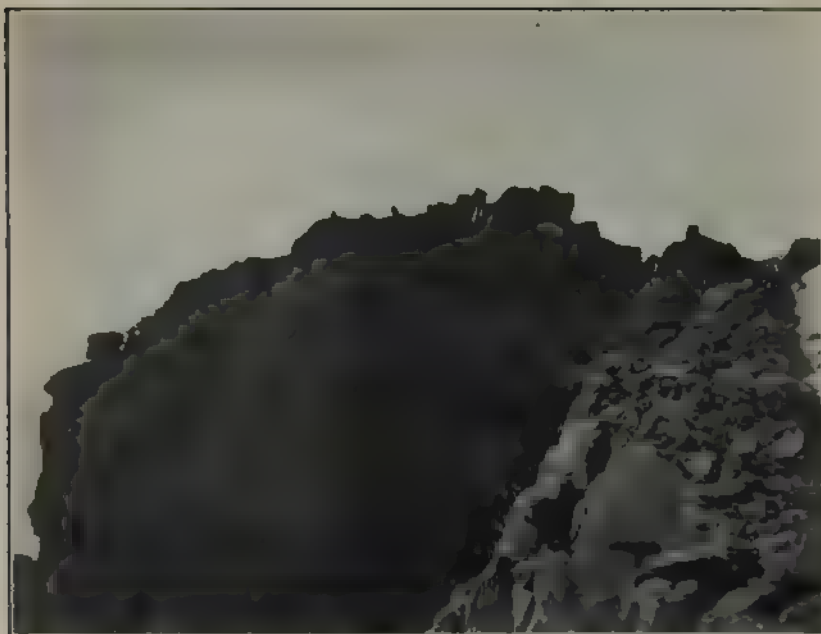
rises slowly in a long tongue to a line of rocky summits at the northwest of the fall, and very steeply to the south toward the crest of Mummery. The latter approach was undoubtedly too greatly broken by *séracs* to be serviceable, but a possible line was indicated up a steep talus and by an apparently dry glacier, to a rock nub from which the long arête leading west to the peak might be gained.

Nearly south of our camp, the limestone ridge above us was broken by a grassy saddle enclosing four shallow pools, and we could in a few hours work down the Blaeberry side of this so as to come out nearly opposite the junction of the brook of Mummery Glacier with the Blaeberry; but to take horses down would have meant several days' work in building a path of elaborate zigzags, and so we sought a way out by the mouth of our Baker Pass brook. In following down this brook we found that it speedily passes into a narrow canyon, and both it and its side walls are quite inaccessible to horses. Accordingly, Otto led our pack-train up on the grassy ridge to the south of our camp and followed this northwest to a saddle, from which he attempted to strike the mouth of Baker Pass brook by its only tributary; but after getting down to a wet meadow, he was stopped a mile short of it by an exceedingly thick tangle of cedar, devil's club, and alder; so, turning back, he bushed out the old trail over which Bill Peyto conducted Messrs. Collie and Wilcox in the reverse direction in 1897. In the nine intervening years there had been much growth, the clearing of which delayed us to such an extent that when we came out on the glacier river next northerly to our Pass brook, — the trapper's Cabin Creek of Collie's map, — it was, in view of the big boulders on its bottom, too swollen to cross, and the Blaeberry below its junction being also too heavy at the late hour in the afternoon, we camped in a clump of little spruces on the flat just below the watersmeet.

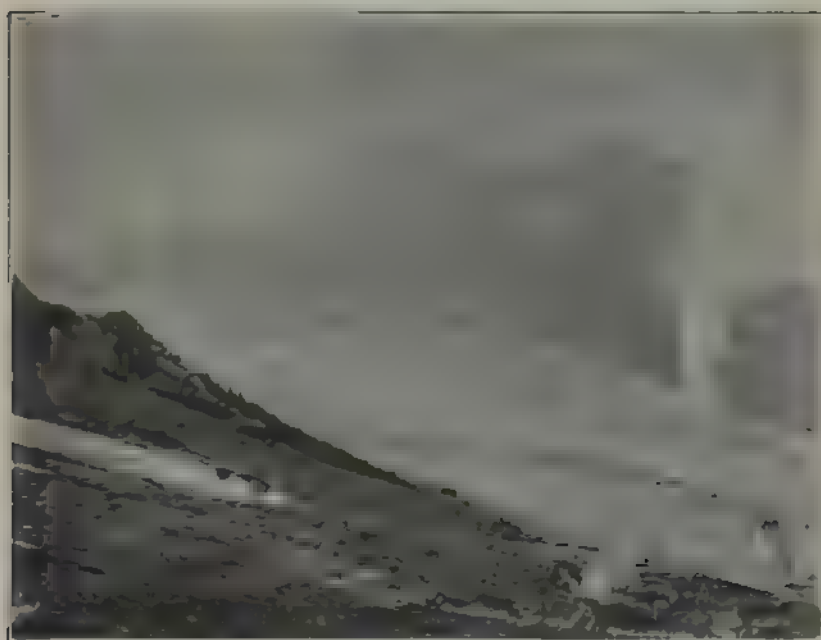
Early next morning, the water being ten inches lower and the current less strong by at least two miles an hour, we got across, and were delighted to find that the trail on the western bank, which Outram's book and the people at Field had told us was probably impassable by blowdowns, had been newly cut through last year by lumber cruisers, so that four hours, through a tall

forest suggesting the Selkirks in its luxuriance, brought us and three ponies to the Mummery stream, which we probably could not have forded after noon. We crossed without difficulty, and put in two hours cutting a trail up it, without finding any feed for our horses beyond a mosquito-infested cedar swamp and alder meadow, half a mile or so southwest of the crossing. Our time being limited, we did not delay another day to cut a trail to a high camp near the magnificently steep ice-fall of the glacier, although aware that was what the occasion demanded.

Having foolishly put faith in an "Energie" alarm watch, we did not get off next morning before five, and had a bad two hours in traversing the alders and devil's club, getting many falls and scratches in the process, before we reached the brook, the second falling from the ridge bounding the Mummery valley on the south, which we had observed from the Blaeberry Mountain and part way to which we had cut a trail the previous afternoon. However, it made little difference, as the light was slow to penetrate the thick growth, and a lantern would have helped little, even if it would have long survived the knocking to which it must have been subjected. We climbed the rock ledge, over which this brook falls, to its source in the distinct notch made between the slope of Mummery and the easternmost peak of its ridge, here showing steep black precipices. Having a distinct snow-capped summit and possessing a small glacier of its own, we felt justified in calling it Peak Pokanoket, after the rock of that Indian chieftain which rises steeply from the banks of the Charles River in Sherborn on the estate of Dudley Clark, Esq. Over this snowy gap appeared the double rounded rock peak which, seen from across the valley, appeared about ten miles south of Mummery. Crossing the talus at the top, we reached the lowest nub of rock sighted by us three days before and descended on the west to a dry glacier (9 A. M.), over which we proceeded to the second nub, whence a second dry glacier brought us to a somewhat crevassed and larger glacier that forms the southern point of the great horseshoe-shaped ice-fall. We roped to traverse this, and so kept on the rope over the rotten rock of the east arête, — which runs, a narrow edge of weathered limestone, uncovered by snow, — its whole length of five miles or so,

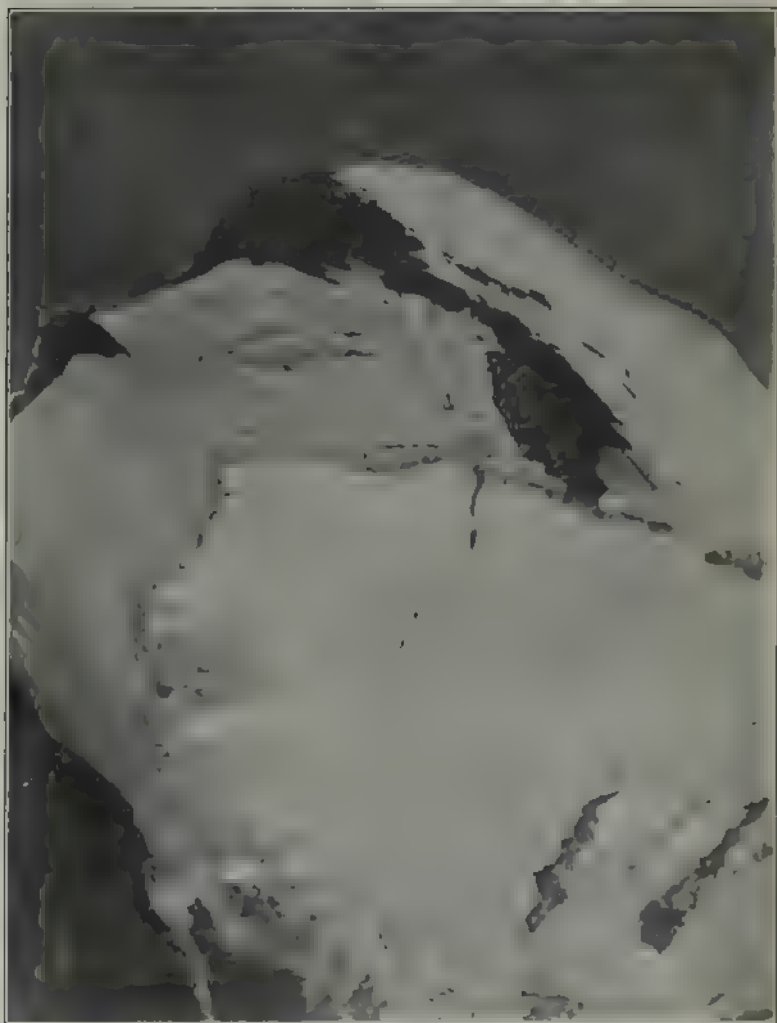


HIGHEST SUMMIT OF MT. MUMMERY ('THE BASTION')



VIEW NORTH ACROSS MUMMERY GLACIER ABOVE ICE FALL

From photographs by R. W. C. H.



SUMMIT OF MT. MUMMERY FROM WESTERN ARÊTE

From a photograph by R. Walcott

till we reached the foot of its culminating peak, at which point the ridge breaks down. To the south, for its entire distance, the descent is sheer and unbroken by any approaching ridge; but on its northern slopes its angle is not so steep, and we were here and there able to make use of the covering of snow and ice, so that the ascent until 1 P. M., though long, presented no difficulty.

This culminating peak of the arête had to be approached from the north; its angle was great and its surface of hard ice. The next two hours Christian employed in cutting a steep zigzag of steps and handholes and bringing us across two long bergschrunds back to the ridge and the welcome warmth of the sun, so that at 3.30 we reached the corniced top with nothing worse than numbed fingers. What was our surprise to find a thin peninsula of rock, jutting out not more than a hundred yards to the south, invisible to us from across the valley as well as during the whole of our ascent, but unquestionably slightly higher than the snowy summit. This bastion at the top was nowhere wider than twelve feet, and at its junction with the main ridge four or five. On all sides it fell away sheer, thousands of feet. In places it was narrower twenty and thirty feet below than at its top, and its whole composition appeared to be as cracked and broken as its surface undoubtedly was. Still it was the peak, and though none of us liked it much, we crept out over and around the toppling slabs to its southern end, where we set up a stone man and left our names and the date. Christian likened its composition to that of Number 6 of the Ten Peaks, only more so, and counselled the postponement of our lunch, photography, and observations until our return to the snow top. As it seemed certain that long before another party will arrive there it and all its neighboring ledge will be reposing thousands of feet below, we placed another cairn on the rock from which springs the rounded ice cornice.

After a week of clear skies and cool weather, it had turned sultry, and a thick wood-fire smoke blotted out all beyond twenty miles of us. To the northwest, Freshfield — here appearing as a sugar loaf over two sharper, nearer peaks, possibly Pilkington and Walker — dominated the view, while at a similar distance bearing 70° west of north we noticed a sharp

peak, to the south of which two glacial tongues met and drained off southerly, presumably into Waitabit Creek. To the southwest, not more than five miles distant, rose steeply from its western and northern valleys a peak of black rock. The top slopes to the west and carries a snow scalp. We suggest it be named for Professor Davis, the president of the Harvard Traveller's Club. Probably the glacier heading at its summit joins that which drains into the Blaeberry north of the summit identified by Mr. Wheeler as the Black Rock Peak of Outram's map. There were few distant peaks to be clearly seen, and little time to take their bearings.

It was 3.45 when we reached the snowy summit, part of which was cornice, and at 4.30, after visiting the bastion, we started down. At 8.30, twilight found us at the top of the rock wall of the saddle brook, which we had found troublesome coming up because the downward dip of its strata offered few handholds. Here we sacrificed our clothes, and came, or rather fell and slid, through the alders and spruces along its edge, trying in vain from 9.30 till 12 to reach our camp through the black jungle of the valley delta. Finally we made a fire on the river's edge, ate supper, and walked into camp at daylight after a glorious day of pleasure unalloyed, except at its close. We should advise our successors to respect Mummery's preference for gîtes,¹ and have a high camp on one of the two nubs passed over by us, as they both have a growth of small trees, and thus at least four hours of a long day may be avoided.

Next morning, in consideration of the thin diet which the Blaeberry had afforded our three ponies, we retraced our steps, and joined the bulk of our outfit at Peyto's crossing of the Blaeberry.

There our party separated. Burr and Cabot returned over the way we had come, reaching Field in three days, while Peabody and I used seven in the wholly delightful circuit of the Middle and South forks of the Saskatchewan by Howse and Bow passes. The lovely succession of brooks and waterfalls on the unknown Blaeberry headwaters, the desolate grandeur of the broad rock-strewn bed that takes the meltings of the Dent and Freshfield glaciers, the superb uplift of the rock summit of

¹ See *Climbs in the Alps and Caucasus*, page 150.

Forbes, and the glorious pinks, greens, and yellows of the flat-topped dolomitic Wilson, we shall long remember, but most of all the closer view of the fine mountain mass — as Christian said, and rough, big, and imposing like the man — which appropriately bears the name of him who delighted in “the curves of wind-moulded cornice, the delicate undulations of the fissured snow,” no less than in “the tingling horror of the precipice, the gaunt bareness of the stupendous cliffs.”

To any one who has read that most delightful of mountain-climbing books, “Climbs in the Alps and Caucasus,” the commemoration of Mummery’s restless and daring spirit in this still remote peak of the Canadian Rockies will seem appropriate. Indeed, its but lately trodden summit might itself be indicated by his enthusiastic description of his first and enduring mountain love, the Matterhorn, “still, in 1871, shrouded with a halo of but half-banished inaccessibility, as looked at through the tangle of the pines.” Of this “brilliant and fearless climber,” as Mr. Douglas Freshfield referred to him at the winter meeting of the Alpine Club in 1895, the president went on to say: “I had never climbed with Mr. Mummery, but I regarded it as one of the greatest compliments ever paid me that he asked me to go to the Himalayas with him.” Circumstances prevented this comradeship under the tremendous tower of Nanga Parbat, but the companionship of Freshfield, of Dent, of Walker, and of Collie, those conquerors of distant giants in foreign lands, whose exploits loom large in the annals of the British Alpine Club, is forever marked among these splendid snow-fields.

With Professor Guyot on Mounts Washington and Carrigain in 1857.

BY S. HASTINGS GRANT.

Read July 6, 1906.

IN the summer of the year 1857 I attended the annual meeting of the American Association for the Advancement of Science, held that year at Montreal, Canada, and there heard the late Professor Arnold Guyot of Princeton University read his interesting paper on “White Mountain Measurements.” Learning

that it was his immediate purpose to ascend Mount Carrigain, the then unexplored central peak of that Appalachian group, for the purpose of determining its elevation by barometric measurement and of ascertaining its relation to other heights which it commands, I arranged to accompany him and further as best I could his proposed undertaking.

Singularly, it is within a few months only, and near the close of half a century after the event, that I find myself in possession of the unofficial details of that noteworthy expedition, and am able to communicate them in the twofold form of an Itinerary, and of Letters written while en route, as follow.

ITINERARY.

1857, Aug. 21, Friday. Arrived from Quebec with Prof. Guyot at Gorham, N. H., at 9.30 A. M.; met Herbert Gray Torrey; bought stout boots, hatchet and crackers, and left for Glen House, arriving there at 12 M. Weather unsettled; did not ascend; met Kent, Wurz, Harrison and Runkle; after tea bowled, learned how to take observations on barometer, and packed baggage to go around.

Aug. 22, Saturday. Started at 7.45 A. M. on foot for the summit, five of us, and arrived at 11.45 A. M.; left at 2 P. M., the party separating. Prof. Guyot and others go to Crawford's, I return alone to Glen House, arriving at 5 P. M.

Aug. 23, Sunday. No church; met Prof. and Mrs. Botta.

Aug. 24, Monday. Started with Torrey and others for the summit at 7.45 A. M., arriving at 11.45 in a drenching rain; took observations at the half-way house and again at summit; concluded to stay all night, thirteen¹ of us in all, among them Boardman, who was preparing a map with the aid of an odometer, who made it $8\frac{3}{4}$ miles to Crawford's and 7 miles, 11 rods to Glen House; had hard work to keep warm, it being 38° at the supper-table and 25° during the night; wind blowing a hurricane.

Aug. 25, Tuesday. Rose at 5 A. M. to see driving clouds before sun-

¹ The following are the names of our party: W. O. Grover, Boston (came in a conveyance); Herbert Gray Torrey, New York (rode with him); C. L. Woodworth, Amherst, Mass. (walked up ahead of us); Merrick Lyon, Providence, R. I.; John H. Bufford, Boston; Harvey Boardman, Griswold, Ct.; Clarence Buel, Troy, N. Y.; O. P. Buel, Troy, N. Y.; J. H. Prentiss, Bangor, Me.; Alonzo F. Lewis, Conway, N. H.; George H. Blake, Portland, Me.; Charles S. James, Lewisburg, Pa.; S. Hastings Grant, New York.

rise ; rocks covered with ice ; sunrise a glorious spectacle ; after breakfast the company passed a vote of thanks to our host, John H. Spaulding of Lancaster, N. H., and to Mrs. Angeline A. Hall of East Burke, Vt., and each got the signatures of the others. I started with Torrey at 10.30 A. M. for Crawford's and soon met Prof's. Guyot and Kerr on their way up ; we kept on and commenced observations, arriving at Crawford's at 5 P. M. ; met C. N. Bovee ; Prof. Guyot returned at 7.30.

Aug. 26, Wednesday. After ascending Mount Willard with Prof. Guyot before breakfast we proceeded with our guide (Wm. Hatch) in the stage as far as Lawrence's on our way to ascend Mount Carrigain ; left Lawrence's at 10.45 A. M. ; dined at 2 P. M., and reached base of mountain and last water at 5 P. M., where we camped, 2560 feet above sea-level ;¹ wrote note while camp was building ; made tea, and read aloud to Prof. Guyot while he drank his ; offered prayer and retired about 9 o'clock.

Aug. 27, Thursday. Breakfasted, and started at 6 A. M. ; arrived at summit, 4720 feet above sea-level,¹ at 10 A. M. ; left summit at 11.15 A. M. ; reached camp at 2 P. M. ; out of woods at 6 P. M. ; took Lawrence's one horse wagon for two or three miles when we met Gibbs' team and arrived at the hotel at 9.30 P. M. ; met Prof. Holton ; glorious tea.

Aug. 28, Friday. Prof. Guyot left for Franconia at 8 A. M., and I for Conway at 11 A. M. with Holton, leaving Torrey ; I on outside in drenching rain ; arrived at Conway about 6 P. M.

Aug. 29, Saturday. Left Conway at 6.40 A. M. in stage for Centre Harbor with Holton and others, arriving there at 12.50 P. M. ; left there at 1.40 P. M., sailing the whole length of the Lake (Winnipiseogee) and reached Boston at 8 P. M.

LETTERS WRITTEN WHILE EN ROUTE.

SUMMIT HOUSE, MT. WASHINGTON,

Six o'clock A. M., Aug. 25, 1857.

DEAR FRIEND, — Here I am this frosty morning at the height of my ambition. Would that I could give some fitting account of the past twenty-four hours. I may as well tell you that on Saturday morning five of us started from the Glen House, at the base of Mt. Washington, about half-past seven o'clock, to ascend the peak on foot. We arrived there in four hours, having been passed on the way by a cavalcade of fifteen persons, amongst whom were some ladies. These

¹ [As estimated on the ground.]

had a very picturesque effect, winding over the rocks, but I did not envy them their horses. At the top we numbered forty or more, some having ascended from the other side. Nearly all the way the landscape was obscured by clouds, so that few views were to be obtained. At the top we were in the midst of such a dense cloud that we could scarcely see the distance of ten feet. After a hearty dinner and a rest we separated about two o'clock, my companions all going down the opposite side of the mountain, and I returning the way I came, to spend the Sabbath with my brother,¹ who had charge of one of the barometers. The Sabbath was passed very quietly, there being no arrivals or departures of coaches, which gave me great satisfaction. Then, too, we had a good, spacious room, which was the more prized as the hotel was crowded with more than two hundred persons. This day of rest enabled me to recover from the fatigues of Saturday. Very few have the courage to walk up at all, and still fewer to go up and down on foot the same day; probably not more than ten or twelve a week from each side, although I found it not remarkably difficult. (If my writing is hard to decipher, it is because it is still harder to execute it—the thermometer being at 36° and my fingers stiff with holding the thermometer out in the wind—where it is at $33\frac{1}{2}^{\circ}$.) The understanding [with Prof. Guyot] was that Torrey and myself should ascend again on Monday, and that Prof. Guyot would come up from the other side and meet us, if there was a prospect of a fine day. On Monday morning everything was so promising that we started off, full of expectation, and ascended more than halfway very pleasantly, having, like Pilgrim, many views by the way. Soon after that, however, just as the cavalcade again wound in sight, the rain began to come, and come in such earnest that I was drenched so thoroughly that I could not get dry and warm before I retired to rest that night. We arrived at the Summit House at 11.30 A. M., intending to rest for a couple of hours, and after dinner (oh! what an important matter this dinner becomes after a morning spent in exercise and cold) to descend on the opposite side to the Crawford House. (5.30 o'clock, P. M. I am now at the Crawford House, but must go on a little farther from the point at which I left off.) But the storm was so driving that it seemed like rashness to venture off again in it; so we (and some of the number very unwillingly) came to the conclusion to pass the night there. The inducement to do so was the greater because I did not wish to ascend twice without

¹ My foster-brother, Herbert Gray Torrey, now (1907) U. S. Assayer, New York City.



A. Guyot

PROFESSOR ARNOLD GUYOT

From a photograph taken c. 1867

obtaining any view from the top, and the wind when blowing with such fury was not favorable for after clearness. (I have to stop every few minutes to go to another room and take a note of the barometer, which must be my excuse for bad writing, etc., now; don't you like my little asides?) At two o'clock all those who were determined to go down the mountain (only those on horseback) started, and while we pitied them exceedingly, we could not but congratulate ourselves on the improved chances of getting near the two stoves. We afterwards heard from two persons who came in near evening in an almost exhausted condition that some of the ladies had to get off and walk part of the way. They looked ready to perish, but women can and will go through anything that men can, — sometimes, it seems to me, through much more. Around these stoves we poor, sorry individuals crowded, endeavoring to dry and warm ourselves as best we might, but fuel being very precious, our degree of comfort was only comparative, although our host, a good, strapping Vermonter of over six feet, and a heart in proportion, passed his word that we should be made comfortable, and so far as it was in his power we were made so; but the temperature of the room was but nine degrees above freezing, and that of our supper-table but six. The pelting storm without was most pitiful, and when each hour I went out to take the range of the thermometer, as was necessary, I would come back all benumbed; and yet we thought this was nothing, less than nothing, to Kane's and Fremont's exposures. We were a merry company of thirteen, every one determined to be as hilarious as he could, and there were all sorts of characters represented there. At tea our host, after saying that it was the worst storm they had known this season, mentioned that it was on just such a night, about two years before, that Miss Lizzie Bourne perished, not forty rods from the house, from the exposure, and I feel assured that any one would have died had they been out all this night. (Here comes the mounted party, thirty-five in number, back from their visit to Mt. Washington.) Well, soon after eight o'clock, thinking that bed would be the most comfortable place for them, most retired, and finally I followed, scarcely expecting to be warm enough to sleep, but the provision of blankets was such that I soon forgot myself, only to awake once or twice in the night to hear the howling of the winds, a weird but pleasing music. I little thought there was any likelihood of our having any view in the morning. About five o'clock I was awake by one of the attendants coming to my stateroom (more like that than anything else), and telling me to get ready and see a sunrise. I

doubted it very much, but he opened the door,¹ and I shall never forget the appearance presented. First would rush past a rosy-coloured cloud, suggesting to me a glimpse of pandemonium from its furious, driving, rolling character; then all would be blackness. I sprang to the floor in an instant, and soon such a sight presented itself as I never imagined or could describe. The sunrise from Mt. Rigi was the nearest to it that I ever saw, but that was tame in comparison. There



TOP OF M. WASHINGTON 6115 FEET ABOVE THE LEVEL OF THE SEA.

From a woodcut of the period.

were cascades and torrents of clouds below us; I do not exaggerate. I despaired at the time of conveying any idea of what was passing around. No painter could depict it, for motion was one cardinal feature. It was almost impossible to stem the icy wind sufficiently to go a few feet; the rocks were covered with heavy hoar frost, the mercury having been at 25° during the night, and now standing at 31° . But out of doors we must be, and were for nearly five hours, for we could see from the ocean on one side to the Green Mts. on the other, with Conway, Lancaster, and other places in the landscape. But to show how fickle Nature is in the dispensing of her favors, I will state that we had not left half an hour before the top was covered with clouds that did not leave it all day, — and all those who ascended to-day, confident of being repaid, had to return without being satisfied excepting by what they saw on the way, which was enough for any one.

¹ Marked in the picture, — a very faithful one, by the way.

Herbert and I left at ten o'clock this morning and footed it down, meeting Prof. Guyot on his way up. We are now pleasantly located for the night at the old "Crawford House," now "Gibbs' Hotel," but which should be called "The Notch House," as it is within a short walking distance of the White Mountain Notch, as distinguished from the Franconia Notch. . . . Just before tea I was telling Prof. Guyot where my room was. "Oh!" says he, "that's where they put the single gentlemen. You must leave the barometer and bring a lady with you to get good rooms." . . . Ah! He is one of the loveliest of men for any one to have for a companion, and one of the few I could understand a lady falling in love with.

Wednesday, Aug. 26, 1857.

Our Camping Ground on Mt. Carrigain, 2560 ft. above sea.

Here at five o'clock in the afternoon I am resting a little, after six hours of about the hardest tramping in the woods that I was ever connected with. At half-past five o'clock this A. M. I arose and started off with Prof. Guyot to climb a small mountain (Mt. Willard), from which a view is to be had second only to that of the Twin Lakes and Prospect Hill.¹ On the way we met first a lady and gentleman descending on horseback (they having taken an earlier start than we), and then a carriage load of the same. Arriving at the top we gave a short time to the view, took its height, and got back for a well-appreciated breakfast. Immediately after, we took the stage, having provided ourselves with a guide and provisions for the night's sojourn on the mountain, which, from there being no path up this untraversed and unexplored mountain, was quite necessary. The guide has already erected a kind of shanty, covered with bark, and Prof. Guyot is now cutting some brush for us to sleep on, and it behooves me to be building the fire soon. I am nearly made crazy by the black-flies of which your brother and sister spoke. It is my first experience with them, and they are our only annoyance.

Thursday, 6.30 o'clock A. M.

We are now some ways on our upward climb. Last evening as soon as the fire was made the black-flies disappeared as if by magic. We set a tin teapot on the fire and soon had a glorious drink of that social beverage. Prof. Guyot is as much a lover of the infused herb as is your friend; so while he drank his (we had but one tumbler) I read to him some incidents of White Mountain history. Afterwards I took my tea and then prepared for retiring. Our guide had chopped

¹ Litchfield County, Conn.

down two or three dead trees for fuel, a spring was not far off, and as we spread our blankets, the stars were shining down brightly, while the moon could be dimly seen through the thick trees. We had crossed a fresh bear track on our way through a swampy place, and at the house where we made our last halt, preparatory to ascending, the farmer had lost a sheep two nights before, which the bear, whose track measured nine inches by five, had dragged quite a ways. After a prayer had been put up for our safety and that of our friends, we gave ourselves up to sleep. Now I am enjoying a splendid prospect. As many as twenty-five or thirty peaks can be seen from my sitting place. We have still fourteen or fifteen hundred feet to climb and no pathway at all. Over fallen trees, through thick undergrowth we pass, and all the time climbing, climbing. But the weather is so beautiful we enjoy it much, and were it not for these awful flies, which will not allow me to write one word in peace, I should be quite happy. Walking a few steps has given me a full view of Mount Washington in all its grandeur, and an ocean of peaks around. The aroma of our guide's pipe comes to me, while near by the Professor is taking a sketch. The print of a deer's hoofs is plainly discernible in the moss, and he must almost have been frightened by our coming. Our peak seems almost three miles away, and to this we must ascend and get back to the road before three o'clock.

Ten o'clock A. M. Summit of Mt. Carrigain.

We've arrived at last! Hail! Hail! No water within three miles for us.

Gibbs' Hotel, Friday morning, Aug. 28, '37.

Yesterday, and day before, while halting in the woods, I pencilled you some rough notes of our far rougher travels, — which I almost fear you will not decipher, and if you do not you need not feel very anxious. Now that the expedition is all over I can look back upon it with pleasure as a great feat accomplished; but so far as my memory serves me, I never went through more, in two days, of toil and exertion; and it seems to me that no kind of riding, walking, or sleeping place will hereafter be esteemed otherwise than agreeable and easy by comparison. Not only was our way through pathless forests, but so far as I can learn, ours were the first footsteps that ever reached the summit of Mt. Carrigain. Before coming here I had heard that no one had ever ascended it, but it seemed quite

unlikely ; but by inquiry of those living near and others most likely to know, this seems to be the case, and I can now readily believe it, for no one could go up and down it the same day. On the summit I picked a little sprig of green which I enclose. It is all I have to show excepting scratched face and hands, bruised feet, and well-torn clothes. I don't begrudge the pains taken in the least. Quite the contrary. And then the outlook was beyond anything yet seen. We were in the centre of the White Mountains, and in one direction could see the Mount Washington range ; in another, the Franconia range ; in another, the Sandwich range ; and in the fourth, the Chocorua group ; with valleys, lakes, and a multitude of lesser peaks in the midst. Are n't you tired of all this ? I am sure you are, for I am tired of telling it you, and will therefore close by saying that I leave within an hour for Conway, thence by lake Winnipiseogee to Boston, where I expect to spend the Sabbath, arriving in New York Tuesday morning, grateful for all I have been permitted to experience and enjoy.

BIOGRAPHICAL NOTE.

ARNOLD HENRI GUYOT, or ARNOLD GUYOT, as the name of this distinguished scientist is universally known, was born September 28, 1807, at Boudevilliers, near Neuchâtel, Switzerland, to which latter place, after nine years of study at Berlin and Paris, with much varied experience elsewhere, Guyot returned in 1839 with the degree of Ph. D., to become Professor of History and Physical Geography at the Neuchâtel "Academy," in connection with Louis Agassiz and other distinguished instructors. This professorship Guyot held for nine years, during which period, besides lecturing and instructing, he did all he could of outside work, meteorological, barometric, hydrographic, orographic, and glacial, thereby qualifying himself the better for his approaching field of labor here.

On leaving Switzerland for America in 1848, which he did at the instance of Agassiz, who had come here two years earlier and was already installed Professor of Zoölogy and Geology at Harvard, Guyot renewed his devotion to Physical Geography by delivering courses of lectures on that and cognate subjects, first in French before the Lowell Institute, Boston, and later in English before a number of our leading educational institutions. His Lowell lectures formed the basis of his illuminating work entitled "Earth and Man," that was received with great favor both here and abroad.

In 1854 he was called to the chair of Physical Geography and Geology at Princeton, a foundation created and endowed for him, and one that he filled with great distinction for thirty years.

It is, however, by the masterly work undertaken and energetically prosecuted by him in exploring the Appalachian system of this continent that Arnold Guyot will be best known and ever remembered by members of the Appalachian Mountain Club. His labors there are fitly though very briefly sketched in his own words in the opening of a paper "On the Topography of the Catskill Mountains," contributed by him and presented by President Niles at the sixteenth Corporate Meeting of the Club, December 10, 1879, wherein he says: —

It is well known to most of the members of the Appalachian Club that ever since 1849 I have devoted the greater part of my summer vacations to the investigation of the physical structure of the Appalachian system, and to the measurement of its altitudes from New Hampshire to Georgia. The larger number of the results obtained, however, still await a full publication, which has thus far been prevented from the want of the necessary leisure for a final revision. A map of the culminating region of the Appalachian system in North Carolina and Georgia, in which I have located over 500 measured altitudes, is still in manuscript: a large number of carefully determined heights in the Adirondack region, with indications of the hypsometric distribution of the forest trees and characteristic plants, is in the same condition.

As to the accuracy of his work Professor Dana says: —

His thousands of measurements in the Alps had prepared him for accurate and thorough work here. As evidence of exactness, his barometric measurement of Mt. Washington in 1851 gave for the height 6291 feet; the measurements by spirit-level made by N. A. Goodwin, civil engineer, in 1852, gave 6285 feet, and a similar levelling under the direction of the Coast Survey in 1853 gave 6293 feet. So again the Black Dome of North Carolina, made 6707 feet by him, was measured with a spirit-level by Major J. C. Turner, civil engineer, setting out from Guyot's line of departure, and the height made 6711 feet.

It is to be remarked that he had early rejected the barometers in use here, and established what is known as the Smithsonian barometer, which in the summer of 1861 he took abroad and compared with those of Kew, Brussels, Berlin, and Geneva, and indirectly of Paris, so that European and American standards are believed to correspond within the narrow limit of one or two thousandths of an inch.

Arnold Guyot died February 8, 1884, at Princeton, N. J. He was greatly favored in having for his biographer Professor James D. Dana of Yale University, who has appreciatively embodied the fascinating

details of Guyot's personal history and scientific work in the memorial of him that he read before the National Academy of Sciences at Washington, April 21, 1886, which was published in Vol. II. of their Biographical Memoirs, and also in the Report of the Smithsonian Institution for the year 1887. In 1867¹ he married a daughter of the late Governor Haines of New Jersey, who still survives him.

S. H. G.

Summit Temperatures in Winter in the Sierra Nevada.

BY J. E. CHURCH, JR., UNIVERSITY OF NEVADA.

INVITED by the paragraph "Summit Temperatures in Winter" appearing under *Alpina* in the last number of APPALACHIA, the writer takes pleasure in presenting a series of summit readings taken in the Sierra Nevada with their bearing on winter mountaineering.

The impulse to these observations came during a winter trip up Mount Whitney in 1905, and through the finding of the lone thermometer box, referred to in the cited paragraph, peeping from under a hood of snow on a rock where Mr. Bonnett had abandoned it the preceding October. An impulsive offer made Professor McAdie to obtain the summit readings desired, but on Mount Rose, near Reno, where the University of Nevada is situated, was accepted, and observations on that peak have since been regularly continued. At present, under appropriation by the Nevada Agricultural Experiment Station, a complete automatic observatory with facilities for obtaining continuous records is being installed.

The records were obtained at first by mounting the ordinary maximum and minimum thermometers in a stout louvered instrument shelter on the crest of the mountain, where the wind could speedily remove all collecting snow. But later, owing to the fact that only the extreme temperatures were recorded and to the tendency of the needle of the minimum to be affected through vibration by the wind, a thermograph was installed. Since that time a continuous record of variations in temperature has been obtained for each term of eight days following the

¹ Plate XXXI. is from a photograph of this period, kindly furnished by Professor A. Guyot Cameron of Princeton University, N. J.

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resetting of the instrument and the maximum and minimum readings for the remainder of the period. With the exception of six weeks' continuous record in October–November, 1905, record sheets were renewed every two weeks from July, 1905, to July, 1906, and approximately once a month since that time. A Short and Mason thermograph and barograph, capable of furnishing continuous records of temperature and pressure for five weeks, are now being made, and their installation will add greatly to the value of the records.

So far as possible, the summary of the present record will be given by months and seasons.

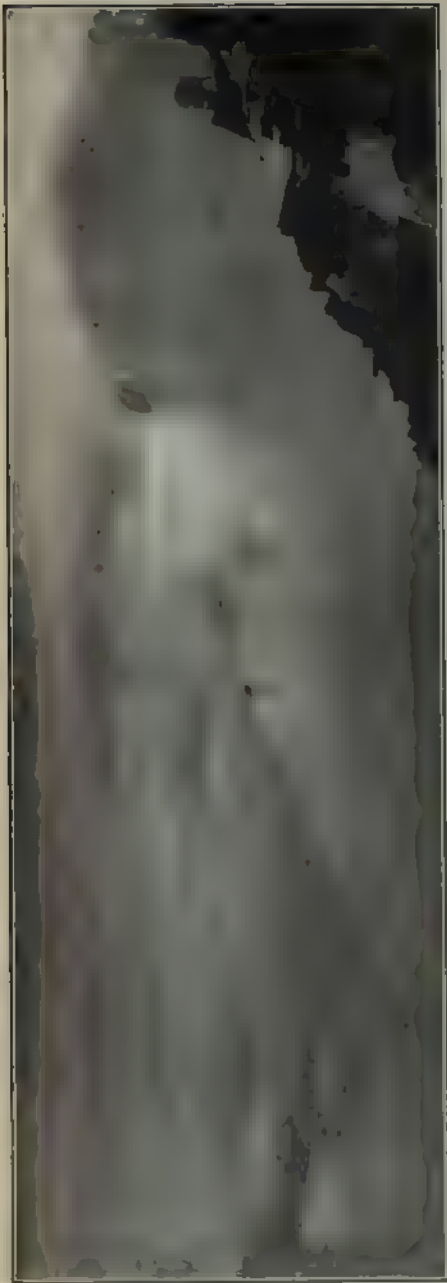
I. MINIMUM AND MAXIMUM TEMPERATURES.

MOUNT ROSE (altitude 10,800 feet).

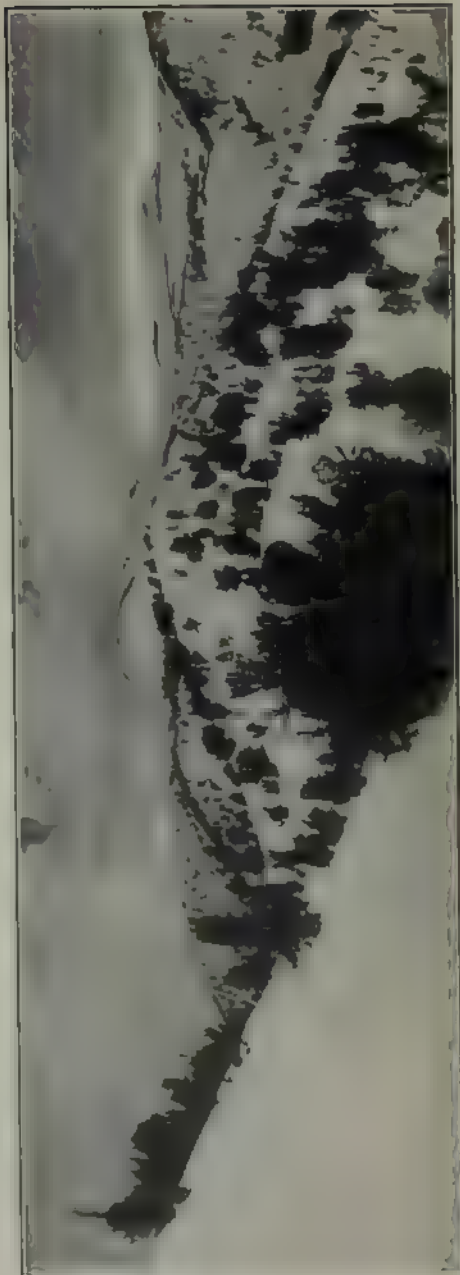
PERIOD 1906-6.	MIN.	MAX.	PERIOD 1906-7.	MIN.	MAX.
	°F.	°F.		°F.	°F.
June 29–August 4 . . .	24	71.2	{ May 31–June 16	10	45
August 4–September 4 . .	–2 (?)	70.8	{ June 16–June 25	30	58
			June 25–July 23	22	71
			July 23–September 2 . .	29.5	68.8
September 4–October 7 . .	–4.5 (?)	65.5	September 2–October 7 . .	18.4	59
October 14–October 30 . .	7	46	October 7–October 28 . .	13	60
October 30–December 3 .	–1.8	52	{ October 28–November 1 .	11	54
			{ November 11–December 1 .	–4	55
December 3–January 30 .	–5	48	December 1–January 5 . .	– 8	37.3
January 30–March 4 . . .	9	36	January 5–February 10 . .	–10 ¹	40
			February 10–February 22 .	16	38
{ March 4–March 18	3	44	February 22–April 14 . .	1	50.3
{ March 18–April 7	–2.5	30	April 14–May 6	13.5	45.3
April 7–May 5	11	44.3	May 6–May 19	8.5	43.5
May 5–May 31	7	49.5			

The record of –2° F. for August 4 to September 4 is probably erroneous, the needle having been shaken by a violent thunderstorm before the shelter was more rigidly anchored. Yet the needle should have been shaken upward, to judge from the inclination of the tube. The succeeding reading of September 4 to October 7 is approximately correct if the record of –1° F. obtained at Bodie (altitude 8500 feet) on September 30 may be considered a criterion. With these exceptions, the temperatures

¹ Estimated.



SUNSET VIEW SOUTHWARD FROM THE MT. ROSE OBSERVATORY, NEVADA





THE METEOROLOGICAL STAT ON ON MT ROSE NEVADA.

of the four seasons are approximately the same for both years so far as records have been obtained.

However, to cite the above maxima and minima for the guidance of mountain climbers without further modification would be misleading, and might deter some from the pleasure of winter mountaineering who would otherwise take up the sport. The minima by no means represent the general tendency of the winter weather, nor are they at all characteristic of the weather in which the average climber should make his initial trips. They represent rather periods of storm. It will be better, therefore, to separate the periods of fair weather from those of storm, and furthermore to keep the hours of night during fair weather apart from those of daylight. In periods of storm the difference in temperature between night and day is almost negligible. The temperature is low enough at best. The table, being necessarily fragmentary, can be used only for the dates indicated. The minimum of each month as a whole will be found in Table I. The chronological arrangement will indicate the relative frequency of storms and the variableness of the temperature. The period covered will be that of snowfall and snowfields on Mount Rose.

II. TEMPERATURES IN FAIR WEATHER AND IN STORM.
MOUNT ROSE (altitude 10,800 feet).

M = Mean Temperature. L = Lowest Temperature. H = Highest Temperature. * Estimated Temperature.

SNOW SEASON, 1906-6	FAIR WEATHER.		STORM.	SNOW SEASON, 1906-7	FAIR WEATHER.		STORM.
	Day.	Night.			Day.	Night.	
	°F.	°F.	°F.		°F.	°F.	°F.
				September 14-16	. . . . .	. . . . .	{ September 15, night wild with snow, wind, and bitter cold. L. 18.
				September 16-22	M. 43.9 L. 30	M. 38.3 L. 27	{ September 16, 6.40 A. M., 18.4° F., 2.50 P. M., 35.5° F.
				September 22-23	. . . . .	. . . . .	{ Gale evening of 22d increased to 40 miles on 23d; snow scud. L. 20.
				September 24-30	M. 46 L. 36	M. 39.9 L. 32	
				October 1-5	M. 37.6 L. 24	M. 31.5 L. 18	
				October 7-10	M. 48.5 L. 42	M. 43.4 L. 31	
				October 11	. . . . .	. . . . .	M. 39 L. 31 (?)
October 15-17	M. 32.4 L. 23	M. 25.6 L. 16	M. 23 L. 9	October 12-15	M. 43.8 L. 40	M. 38 L. 30	
October 18-22	M. 35.3 L. 22	M. 29.2 L. 20		October 16	. . . . .	. . . . .	M. 33.5 L. 27.
October 23-31				October 28-31	M. 38.7 L. 34	M. 29.8 L. 14	
				November 1	M. 28 L. 22	M. 19.5 L. 17	
November 1-3	M. 37.3 L. 30	M. 31.5 L. 19	M. 13.5 L. 4	November 2-5	. . . . .	. . . . .	M. 18.4 L. 13.
November 4-6	. . . . .	. . . . .		November 6	M. 30 L. 28		
November 7-16	M. 35.8 L. 25	M. 31.3 L. 18		November 11-14	M. 39 L. 30	M. 35.8 L. 29	
November 17-25	. . . . .	. . . . .	M. 18.2 L. 0	November 15-19	. . . . .	. . . . .	M. 12.3 L. -4.
				November 20-21	M. 17.3 L. 12 (?)	M. 15 L. 10	{ Blizzard one of most violent of season. Extremes, 8° F. and -4° F. Instruments encased in snow and surrounded by frost plumes.
				November 29-December 3	. . . . .	. . . . .

II. TEMPERATURES IN FAIR WEATHER AND IN STORM. — Continued.

MOUNT ROSE (altitude 10,800 feet).

M = Mean Temperature.		L = Lowest Temperature.		H = Highest Temperature.		* Estimated Temperature.	
SNOW SEASON, 1905-6	FAIR WEATHER.		STORM.	SNOW SEASON, 1906-7	FAIR WEATHER.		STORM.
	Day.	Night.			Day.	Night.	
March 10-13	°F.	°F.	°F. { M. 19.3 L. 3. Storm con- tinued until 18th. Ex- tremes, 3°F. and 10°F. M. 4.3 (?). Heavy snowfall.	March 21-23	°F.	°F.	°F. { Wild storm. Snowfall at 6000 feet, 3 feet in depth. At- tempted ascent, March 23, frus- trated by deep snow, and at- tendant exhaustion.
	
March 18-27	{ M. 19.3 L. 6 March 18, 12.30 P. M., 7°F.	M. 18.5 L. 5					
March 31-April 3	. . . . .	. . . . .	{ Night of March 31 at 9000 feet, —2°F. April 1, 10 A. M., at summit, —2.5 °F.				
April 7-16	M. 26.4 L. 20	M. 23.1 L. 13	M. 22.5 L. 19	April 13	. . . . .	. . . . .	L. 2
April 16	. . . . .	. . . . .	M. 16 L. 13				
April 23	. . . . .	. . . . .		April 14	. . . . .	. . . . .	{ M. 22.5 L. 18. Fog with snow at summit. Drenching rain on lower slopes and in val- ley.
April 24-26	M. 22.7 L. 13	M. 15.5 L. 12		April 15-23	M. 23.8 L. 14	M. 26.7 L. 14	
April 27-May 2	. . . . .	. . . . .	M. 25.3 L. 18 (?)				
May 5-10	M. 41.1 L. 30	M. 35.6 L. 32	M. 23.8 L. 12	May 6-9	M. 29.1 L. 22	M. 24.7 L. 20	
May 11-14	. . . . .	. . . . .		May 10-12	. . . . .	. . . . .	M. 20.5 L. 10
May 19-24	M. 25.3 L. 18	M. 21 L. 16	M. 19.5 L. 12.3 (?)				
May 25-28	. . . . .	. . . . .		May 13-15	M. 27 L. 20	M. 26 L. 16	
May 31	. . . . .	{ 2 A. M., 20.8 °F.					

{ 2 P. M., 25° F. Gale 50 mi.
Impact of wind against obser-
vatory caused column of merc.
barometer to spring upward in
jets. Crust furrowed by gale.

June 1-3	M. 30.2 L. 26	M. 28.5 L. 26	M. 22.6 L. 12 (?)	May 19	. . . . .
June 4-6	. . . . .	M. 31.8 L. 29	{ Thunderstorm with snow between 9000 and 11,000 feet. 2.15 P. M., 31.1 °F.		. . . . .
June 7-9	M. 34.7 L. 32	M. 40.6 L. 30			
June 16-25	M. 46 L. 40			
June 26	M. 31.6 L. 3			
June 26-30	M. 36.8 L. 23				

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It will be seen that foresight and caution are necessary in early autumn and late spring, as well as in the depth of winter, if ascents involve night work or are exposed to storm. This is especially true in the Sierra Nevada above the altitude of 9000 feet. Above that altitude terror may be in store for the novice, if he unpreparedly encounters the storms that rage there. Such was the experience of Mr. Bonnett on Mount Whitney, and such was the startling experience of Professor Johnson and Mr. Prather on Mount Rose November 5, 1905. Above timber line the party encountered a blizzard driven by a forty-mile gale from the north. The felt boots given them to wear had been discarded for lighter shoes of leather. The wind penetrated trouser-legs and coats. Fires were built as guide-posts for the retreat and for warmth. After being forced back three times, Professor Johnson reached the instruments on the summit. The temperature at that point at noon was 10° F.

In the depth of winter at least an approximate knowledge of the character of the storm being faced should be obtained before venturing too far. On January 3 last, the writer and Professor Frandsen attempted to gain the observatory in the teeth of a gale that was sending snow-clouds from every pinnacle. It was believed that the gale would subside in the evening when the higher levels should be reached, but through lack of an aneroid barometer, no definite forecast could be made. The party owes its salvation to retreating upon signs of physical exhaustion. The gale was the precursor of a terrific blizzard, with temperature of —4° F. on the mountain. In a lull of the storm the party made its way to the observatory in comfort.

Last season the weather April-fooled our parties three times within a week. Professor Johnson and Dr. Rudolph, after spending the night of March 31 near timber line, in an excavation in the snow at —2° F., climbed to the summit, but could not endure the cold long enough to change the record sheets. Dr. Rudolph had desired to meet the worst the mountain could offer, and the mountain had patiently bided its time. On April 3 the writer attempted to bring down the records, but through loss of a compass wandered helplessly in a dense fog and succeeding blizzard into the wildest part of the range. Three days later

Professor Johnson made the ascent successfully, and so comfortable was the weather that he left his coat below.

On the other hand, if trips are made by daylight and in fair weather, no difficulty need be feared in ascending throughout the winter even to the altitude of 11,000 feet, if a permanent camp be far enough advanced to make the attainment of such an altitude possible within the limits of a short day. One must, however, keep dry, and carry sufficient extra clothing to provide against becoming chilled when stopping or on encountering cold winds at the higher levels.

The longer trips involving night are possible for both men and women, if reasonable equipment be taken for camping or for encountering low temperatures, and even a very meagre equipment will suffice, providing the prevailing weather conditions are well known. An extreme example of this was the recent February trip of our party from Mount Rose to Lake Tahoe along the crest of the range. Only a single blanket apiece was taken, yet a night camp was made on a snow cornice at 10,000 feet altitude, one member of the party sleeping without blanket on some poles placed athwart the firepit, which the fire had melted some five feet into the snow.

The best season of the year for making ascents in the lower Sierra Nevada is February or April-May, for then the weather is more settled and the hardened crust affords a footing much easier and safer than the rocks and soil in summer. The storms of the March equinox, however, should be avoided, for they are liable to drop a large amount of unpacked snow upon the crust.

The dangers besetting the mountaineer in winter are, therefore, storms, fogs, and intense cold. The violent storm freighted with snow should be avoided, the fog should be treated with caution; but the cold is a reasonable enemy. The prospective climber should heed, among others, the following cautions, which are fundamental to his safety and success:—

1. Study the Weather Bureau's current Weather Map, which contains a forecast of the weather two days in advance.
2. Carry an aneroid barometer to aid in making local forecasts.
3. Carry a Topographical Survey chart, or other detail map

and compass, for use in case of fog. Otherwise avoid the fog, which can be detected somewhat readily by the opaque edge against the mountain side.

4. Carry equipment to meet possible snow conditions and cold. Indispensable are felts and rubber shoes, water-tight leggings, and extra felts. The rubbers serve equally well on rocks or in snow or water. For high mountains the Bavarian "Schneereifen" are capital crust shoes. Indeed, they also are indispensable. On very hard, steep crust, "Steigeisen" should be worn below the rubbers. As ice may be met, an ice-axe should form a part of the outfit.¹

5. Travel at least in pairs.

For those who admire scenic effects — and what member of our mountain clubs does not? — and for those who would bring back photographic trophies of surpassing beauty, the best time to make an ascent is immediately after a storm or during its waning. The spiritual returns will be increased tenfold.

To obtain satisfactory minimum records, the ordinary minimum thermometer should be replaced by a thermograph with tube pen — unless the former can be so placed as to be secured against vibration and yet not be buried too deeply in the snow. A tin box laid horizontally in an exposed place could serve as a case for the minimum thermometer, and could at the same time be held rigidly in place by stones.

For Eastern winter ascents, the summit temperatures on Mount Washington should be used as a standard, for the temperature of the Sierra Nevada is modified by the warm ocean currents prevalent along the Pacific coast. In fact, the permanent camps already existent on Mount Washington make it a desirable peak for winter ascents and for studying the scenic effect of storms. But if the Club could install a Fergusson meteorograph on the summit and conduct regular observations, the joys of mountaineering could be directed to the furthering of meteorological science.

¹ A detailed statement regarding equipment may be found in Sierra Club Bulletin IV. 1 (January, 1902), pp. 64-66; V. 4 (June, 1905), pp. 318-321.

The Most Distant Point yet Identified from Mt. Washington.

BY WILLIAM H. PICKERING.

Read November 13, 1906.

ON an exceptionally clear day in 1879 the writer succeeded in distinguishing from Mt. Washington a very minute and distant peak on the northeastern horizon. It was not visible to the naked eye, but was found with the aid of a small telescope. Were it not for atmospheric refraction, it would always remain below the horizon. It is described in APPALACHIA, Vol. II., page 148, and also in the Walking Guide to the Mt. Washington Range, under the name of "Ebene Mountain." The writer does not now recall the authority for this name, but there is no mountain in this region so designated at the present time upon Hubbard's map, which is the most complete map of this region published. In Figure 1 is given a profile of the mountain as it appeared through the telescope. Its azimuth according to Plate IV., accompanying the article in APPALACHIA just cited, is $230^{\circ} 27'$.

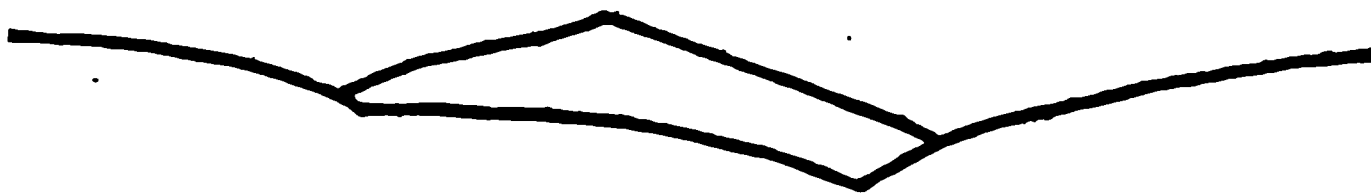


FIGURE 1.



FIGURE 2.

On a recent ascent of Mt. Katahdin, which lies in that vicinity, the writer determined if possible definitely to identify this peak. The view from the summit was fairly clear, mountains at a distance of sixty miles being distinguishable without difficulty. A profile of the southwestern horizon was drawn, and as many peaks as possible identified upon it. On this profile a peak was

found located in about the right direction, the upper portion of whose outline, Figure 2, when reversed, closely resembled the sketch of 1879. The outline was reversed because the peak lay nearly between the two view-points.

This peak, which attains an altitude, according to Hubbard's map, of 3054 feet, is known as Saddle Rock Mountain. It is located close to the Katahdin Iron Works, and is in latitude $45^{\circ} 31'.6$, longitude $69^{\circ} 07'.7$. A computation of its azimuth from Mt. Washington, based upon its latitude and longitude and made by the two formulæ given by Mr. J. R. Edmands in *APPALACHIA*, Vol. II., page 38, gives as a result $230^{\circ} 10'.5$. This result agrees so closely with the observed value as to leave no doubt as to the identity of the peak. Its distance from Mt. Washington proves to be 140 miles, or slightly greater than was before supposed. The deviation from the observed value at this distance amounts to only 3600 feet, or considerably less than one minute of arc measured on the earth's surface, an error which might easily exist in its assumed latitude or longitude as determined from the map. The distance of the Russell Mountains, through a gap in which the peak is seen from Mt. Washington, measures 109 miles according to the latest maps, instead of 103 as stated in the earlier paper.

Thus after an interval of twenty-seven years, the mountain first observed and recorded in 1879 has at length been identified.

ALPINA.

ANNUAL MEETING OF THE AMERICAN ALPINE CLUB. The fifth annual meeting was held (by adjournment from December 27) on January 7, 1907, in New York City, at the rooms of the Explorer's Club. At the business session the vacancies caused by the resignation of Professor George Davidson, the Western Vice-President, and by the decease of Professor I. C. Russell, a Councillor-at-Large, were filled by the election of Mr. John Muir as Vice-President, and of Professor J. N. Le Conte as Councillor. The Honorable James Bryce was nominated for honorary membership. The Publishing Committee was recast, with the President of the Club as Editor-in-Chief, having discretionary power to determine all details of the proposed publication. A liberal appropriation was placed at the disposition of the Committee,

and they were requested to proceed at once to issue the first of the series of monographs proposed when the Club was formed. The annual dinner was held at the Atelier Café, adjacent to the Explorer's Club. Thirty-two members and guests were present, the largest number yet in attendance at an annual dinner. Commander Peary, an honorary member, and Dr. Frederick A. Cook occupied the seats of honor, each having accomplished a notable success in the preceding year, one in the attainment of "farthest North" and the other in the ascent of Mt. McKinley. Captain Bartlett of the Roosevelt was also present, and Professor H. C. Parker and Mr. Belmore H. Brown, who were members of Dr. Cook's party to the base of McKinley. Other guests were Mrs. Cook, Mr. John Crosby Brown, and Rev. William R. Richards.

In the informal after-dinner speaking, Commander Peary and Dr. Cook reported the leading facts of their expeditions; Captain Bartlett was also called to his feet to acknowledge the applause of the company. Rev. Mr. Richards, of the "Brick Church," and others responded briefly and pleasingly to the summons of the President. During the latter part of the evening Vice-President Heilprin was called to the chair. The session continued until about midnight, and it was regarded as one of the most interesting of the Club's annual dinners.

ALPINA AMERICANA. Giving effect to the action of the Board of Directors of the Alpine Club at the annual meeting, the Publishing Committee on February 6 mailed to members the first issue of the long-promised series of monographs, as **ALPINA AMERICANA**, Number 1. The manuscript, — a masterly article on the "High Sierra" by Professor J. N. Le Conte of the University of California, — together with numerous photographs for illustrations and a sketch map, had been in hand for some months. They now suddenly assumed a form, and appeared under a name which, it is hoped, may be perpetuated in a line of publications equally valuable with this initial number.

Professor Le Conte is the leading authority for the region which he treats. His paper is divided into three sections: the General Features of the Sierra Nevada; Description of the High Sierra, the region above forest line lying between the Central Pacific Railroad and including Mt. Whitney on the south; and Modes of Travel, Camping, and Exploration. The second subject is given the largest amount of space, but even here it was found necessary to concentrate attention, as the most characteristic section, upon the region along the main crest of the range drained by the San Joaquin and King's rivers — "the region where its grandeur culminates." The complicated nature of the topography is clearly set forth in the text, and its leading features

are superbly illustrated with unusually fine half-tones made from Professor Le Conte's artistic negatives.

In determining the form of ALPINA AMERICANA the pictorial feature was made of prime importance, and the large page (11 by 13½ inches) permits most effective illustrations. Among the most striking in the present number are the full pages, "Tehipite Dome" and "Down a Gorge at the Head of the Middle Fork of King's River," a view in the text, "Down the Tihipite Cañon," from a striking photograph by G. K. Gilbert, and two panoramas, one west from Kearsarge Pass, the other southward from Lyell Glacier. A half-page view that many will prize perhaps most of all is the "View South along the Main Crest from Kearsarge Pass," with University Peak in the background, for in the immediate foreground is seated amid the blocks of shattered granite the venerable figure of the elder Le Conte, as it were the *genius loci* gazing thoughtfully over his beloved domain. A sketch map based upon work of the United States Geological Survey and original surveys by the author, showing the location of the principal streams and peaks, reduced to a scale of about four miles to the inch and accompanied with profiles of nearly the entire range, is appended. A feature of special interest to mountaineers is a table giving the peaks exceeding an elevation of 13,000 feet, with name, origin of name, latitude, longitude, altitude, authority for altitude, and names of persons who made the first ascent. The list contains some sixty peaks.

The appearance of the new periodical is very attractive. The letterpress, in two columns, well suits with the beautifully clear half-tones. The cover in a matt-finished greenish gray (Lincoln green), with graceful lettering and the club emblem conventionalized in gold, presents the number effectively to the public.

Considering the cost of the publication and its manifest value, the price (fifty cents) is absurdly low; yet to members of the American mountain clubs and geographical societies it is offered at a discount of thirty per cent — thirty-five cents a copy. A quick response was made to the circular soliciting subscriptions sent out to members of the above mentioned societies, but not so generous as the liberal offer of the Alpine Club would seem to deserve. That society looks forward with pleasure to sinking the principal part of its annual income in issuing from time to time monographs of this high character, which, when brought together in single volumes, will form a most impressive and beautiful setting forth of the mountains of all America. It only hopes for sufficient aid through subscriptions to enable it to issue numbers with some frequency and regularity, — if not annually, then once in two years. A demand for a second number is already being heard. Cannot each

reader of APPALACHIA, by interesting at least one additional subscriber beside himself, do something to hasten the appearing of ALPINA AMERICANA, Number 2, presenting probably either the grand peaks of the Cascade Range or the Canadian Alps.

THE FIRST ASCENT OF MT. MCKINLEY. The accomplishment of this feat in September, 1906, by Dr. Frederick A. Cook, A. A. C., of Brooklyn, and a single companion is doubtless one of the most remarkable in the whole history of mountain climbing. The elements of the story are, briefly summed, as follows: a mountain near to the Arctic Circle rising to an elevation of over 20,000 feet, nearly its entire mass above the snow-line of its region; a wild and with difficulty accessible region this, approachable along glacial rivers by the novel accessory for mountaineering, the steam launch, and by pack-train under unusual disabilities; two failures to find a line of ascent, compelling the party to desist from present effort, and tantamount to the postponement of the enterprise to another year; then a party of three set out for surveying purposes, bearing on their backs their entire outfit for a fortnight, provisions, camp, clothing, and liquid fuel for high altitudes; this reconnaissance brings them to the summit of a subordinate ridge, from which a natural route to the summit seems open; two of the party attempt it; neither is trained in alpine climbing, though the leader is experienced in arctic work; to this they trust, and by dogged persistence, living upon pemmican, dispensing with fire, save for tea-making, they toil upward for four days, now building an Esquimaux igloo for the night where a level space will permit, again digging a cavity in the side of a precipitous snow-slope and enduring the rigors of the arctic cold protected only by their sleeping-bags, — and the Providence that stayed the avalanches that might have overwhelmed them, — until at last the summit is theirs! It is a story without a parallel. The nearest approximation is the account of the much lamented Russell's second attempt upon Mt. Saint Elias, which until 1906 stood as the most notable illustration of what can be accomplished by American enterprise, persistence, contempt for hardship and toil, and reliance upon general judgment and common sense (not always justified, we admit) to offset technical knowledge and experience.

HONORABLE JAMES BRYCE. After the long delay, which seems inevitable in the elections to membership in the American Alpine Club, owing to the rarity of its meetings and the wide dispersion of its members, the notification of his election to honorary membership was communicated to Mr. Bryce on May 25, and brought the following response:

BRITISH EMBASSY, WASHINGTON,
May 27, 1907.

WILLIAM S. VAUX, ESQ.,
1218 CHESTNUT ST., PHILADELPHIA, PA.

MY DEAR SIR: Please convey to the Council and members of the American Alpine Club my cordial thanks for the honor they have done me by selecting me to be an Honorary Member of the Club.

Having been all my life a lover of the mountains, and having found some of my chief enjoyments in the climbing of high peaks and passes, it is a real pleasure to be thus associated with those who in America are animated by the same passion for the rocks and snows.

Believe me,

Very truly yours,

JAMES BRYCE.

P. S. I am sincerely sorry to be unable to be with you at the dinner to that famous climber and explorer, the Duke of the Abruzzi, to-morrow, but I hope to have some later opportunity of making the personal acquaintance of some of your members.

AMERICAN ALPINE CLUB DINNER IN HONOR OF THE DUKE OF THE ABRUZZI. The dinner given in honor of His Royal Highness the Duke of the Abruzzi at the new Hotel Astor in New York City on the evening of May 28 was an unusual and a delightful occasion. The Duke is an honorary member of the Club, who ranks in the forefront both as a mountaineer and arctic explorer, and the occasion offered the opportunity for appreciative admirers in both fields to greet him and do him honor.

Soon after it became known that the royal explorer was to visit the United States in command of the war vessels that the Italian government was to send to represent it at the Jamestown Exposition, the President of the Club, after consultation with the Board of Directors, appointed a special committee, consisting of Vice-President Heilprin, Commander R. E. Peary, and Mr. H. L. Bridgman, to arrange the details of a dinner in his honor, should he be pleased to accept it. A cable message brought a generally favorable reply, sent on the day the vessels sailed from Spezzia; but it was not until after their arrival at Hampton Roads that a final acceptance was given and time and place determined. The event proved that no mistake was made either in the choice of city or the immediate place for the banquet. The management of the Astor spared no pains to give to it a distinction, and the efforts of Mr. Bridgman, on whom fell the brunt of the labors of the committee, won ample recognition in the high satisfaction of the participants.

Over the Broadway entrance of the hotel, at an early hour, the mingled folds of the Italian and American flags gave notice to the public of the coming function, while in the beautiful smaller ball-room covers were laid in sumptuous style for the thirty members and guests who had

signified their purpose to be present. Besides the flags of the two countries on the wall at the rear of the head of the table, a profusion of palms almost entirely concealed the remaining lower walls of the room. The table itself was adorned with three large banks of Jacqueminot roses within connecting festoons of smilax, and, with the exquisite service, presented a rarely beautiful appearance.

The guests were bidden for half after seven, and for the half hour previous to the banquet an informal reception was held in the quaint "yacht-room" of the same floor, at which all the members and guests had an opportunity to meet the guest of honor and enjoy his frank and easy conversation. A most interesting moment was that of the first meeting of the Duke and his successful rival for the prestige of "farthest North," Commander Peary, and the cordiality of their greetings, and the good comradeship at once established, spoke much for the broad and generous spirit inspiring both those noted seekers for the North Pole.

The Duke was accompanied by his aide-de-camp, Lieutenant F. Negrotto-Cambiaso, and Lieutenant C. Pfister, naval attaché of the Italian Embassy; Count Massiglia, the Italian Consul-general, was also a guest. The invitation of the Club had further been accepted by Dr. Charles D. Walcott, Secretary of the Smithsonian Institution, and Professor W. H. Pickering of Harvard College Observatory. Besides the leaders above mentioned, polar exploration was represented by Colonel D. A. Brainard of the Greeley Expedition of twenty years ago, and Anthony Fiala, who recently headed the Ziegler Expedition. Regrets were received from President Roosevelt and a cordial letter from Ambassador Bryce. The Appalachian Mountain Club was represented by several members, the invitation to join in the occasion having been extended to those residing in New York.

An amusing incident of the dinner came at the moment when the ices were to be served: the lights gradually went out, until no illumination was left except from the crimson-shaded candles upon the board. Then, through an opened door, four small floats were wheeled in, each the height of the table, and on each a large cake of clear ice, fashioned to resemble a mountain and lighted from within by an electric bulb. Over these miniature peaks diminutive mountain climbers, properly costumed and outfitted with the implements of the craft, were swarming. One was stopped at each side of the dining-table, and the good-will and ingenuity of the devisers of the surprise were duly recognized. The Chairman of the Committee transfers the honor to the management of the Astor.

The banquet finished, the President formally extended the greetings

of the Club to its honored guest, referring to his notable achievements since his previous visit in 1897, emphasizing in particular that with him an attempt was equivalent to a success, accounting for this by the initial care and quest for detailed knowledge from every available source before taking the field, and remarking that such conquerors of Nature may claim one merit beyond conquerors of armies, in that their adversaries never commit mistakes by which they may profit. The Duke responded gracefully in English, though he had previously begged to be excused from a speech. He also took occasion to extol the work of Commander Peary. This explorer was next called upon, and responded with characteristic frank and virile words, in which he referred to the guest of honor as a model for young men of wealth, — a man whose place in the ranks of notable men was attained by strenuous personal effort, and is not due to the gifts of Fortune in the way of wealth and rank. Brief speeches were also made by Secretary Walcott of the Smithsonian Institution, Professor Pickering, Mr. E. S. Curtiss of Seattle, representing Pacific Coast members, and Miss Peck.

In an interlude in the speech-making, which was of the usual informal character, lantern projections were introduced, and an entertainment, varied and notable enough in itself to have given distinction to an entire evening, was presented. Peary showed a selected series from views taken during his latest voyage; Mr. C. A. Gilchrist, a set of beautifully colored slides from negatives of the Mexican volcanoes, taken by him the present season; Professor Parker, in the regretted absence of Dr. F. A. Cook, presented views taken in the recent first ascent of Mt. McKinley; and finally, President Fay exhibited a score or more of the most striking of the Sella slides at present in his possession, including those taken during the Duke's expedition to Mount St. Elias. By a rare good fortune, the President had lately received a series of eight slides from views taken in the recent expedition to Ruwenzori, with the express condition that, following the known wish of the Duke, they should not be exhibited until after the publication of the history of the expedition now being written by Dr. De Filippi. The Duke graciously permitted these also to be shown, to the great gratification of the company.

An interesting feature was the presentation to the guest of honor by Chairman Bridgman of an address beautifully engrossed on parchment in large old English letters of the red, white, and green, and bound in seal leather lined with silk. To it were appended the sign manual of each of those present. It read as follows: —

“The American Alpine Club welcomes to America H. R. H. Prince Luigi Amedeo di Savoia, Duke of the Abruzzi, and congratulates him

on his memorable achievements within the Arctic Circle and at the Equator since his conquest of our own Mount St. Elias.

"The Club gladly records its appreciation of this latest visit of His Royal Highness to the United States, which will renew and strengthen the cordial and historic friendship between his country and ours, for it will never fail to remember that to his countrymen we owe the discovery and name of America.

"May long life and happiness attend Your Highness."

Although the automobile of the Duke had been ordered for ten o'clock, it was well toward midnight when he withdrew, having won the cordial admiration of all the participants in this "purely alpinistic" function — for such he had expressed a wish that it should be. The city press gave full accounts of the occasion. The following words from an editorial in the *Brooklyn Standard-Union* may be quoted as expressive of the sentiment left in the minds of those who were present: "The atmosphere of the occasion, general and personal, was wholesome and inspiring. . . . American alpinism certainly has made a new high record, and the result of last evening will not only strengthen friendships between the workers, but a broader and an intelligent sympathy among all the participants."

Correspondence.

Highest Camps and Climbs.

TO THE EDITOR OF APPALACHIA: In the December, 1906, issue of the National Geographic Magazine a letter is published by Edwin Swift Balch on "Highest Camps and Climbs," upon which, if you will permit me, I would like to make a few remarks. In regard to the highest camp yet made Mr. Balch says: "To any one who will look at the facts intelligently and without prejudice, there can be no doubt that Dr. Longstaff has made the highest camp." In this remark it appears to me, as it may to others, that Mr. Balch appeals to the unintelligent rather than the intelligent, and that he himself neither displays an adequate knowledge of Himalayan mountaineering conditions, nor pays due regard to the demands of science, when he accepts a loose statement of what a man "personally thinks" as a sufficient measure of altitude. Certainly experienced mountaineers can find much to criticise in the "bald prose" that appears so convincing to Mr. Balch.

In his paper in the Alpine Journal of August, 1906, T. G. Longstaff says he "personally thinks" that he reached a height of at least

23,000 feet. In these days, when a mountaineer is expected to ascertain heights attained by means of instruments used with due regard to recognized scientific methods, how much value has Mr. Longstaff's or any one else's personal opinion in the absence of all attempts at proper measurement, in fixing the altitude of a high point that may have been reached? Until Mr. Longstaff can base his altitudes on something more accurate than what he "personally thinks," Mr. Balch cannot claim that the former has passed a night at the highest point yet attained. Mr. Longstaff states, on page 216 of the *Alpine Journal*, that his only aneroid was smashed. This happened some time before he reached the height he "personally thinks" was 23,000 feet; but previous to this accident his method of using his aneroid is open to objection, in that he quotes for his altitudes the readings in feet of an aneroid, the index errors of which he had no means of determining, and without comparison of its corrected readings with those at a lower fixed station, both of which are necessary to an approximately correct result.

Mr. Longstaff again remarks, on page 218, *Alpine Journal*, that his boiling-point observations "were very crude and quite unreliable," with which opinion I think any one who reads his account of his proceedings on that page will agree, so that he had no proper means of determining any of the altitudes he gives. Apart from the fact that his observations as to altitude throughout his trip were absolutely unscientific, it may also be noted that estimates of altitude, usually of small value, are particularly unreliable and incredible on a first expedition to the Himalaya, where the standards afforded by European mountains for judgment are entirely inadequate to the estimation of distance and altitude in these immeasurably greater ones. I have seen this fact sufficiently evidenced in the opinions expressed by topographers and others, who have accompanied us in five seasons of Asiatic exploration.

Another circumstance, which cannot be ignored, tending to show that Mr. Longstaff greatly overestimated the altitude of his high bivouac, is the fact that he and his two companions, one reduced in vitality by mountain malaise, and he himself apparently not in the best possible condition, were able to pass the night in the snow, without tent or any clothing except what they had worn during the day, and suffer no especial inconvenience. At 22,000 or 23,000 feet the cold is almost sure to be intense, and it is very questionable whether they could have slept at that height without being frozen to death or seriously frost-bitten.

I have camped many times in the snow above 16,000 feet, and have always had a freezing temperature at night, lowering rapidly with increasing altitude above that point. At 17,000 feet I have seen the mercury fall to 12° and 9° Fahr. more than once, and at our camps of

20,632 and 21,300 feet, the minimum temperatures registered were 4° , -4° , and -6° Fahr. At these last two heights, where two nights were passed, our nine Europeans, although lying in flannel-lined tents, well clothed in wool and encased in eiderdown bags and an extra blanket, suffered greatly from cold. Our guide and porters, very hardy mountaineers, complained of severe pains in the chest and back due to cold, and expressed a doubt of being able to remain longer at such heights, even in the warm coverings provided.

The altitude of our highest camp of 21,300 feet, where two days and nights were passed and many observations made, was measured carefully by calculations with tables, based upon our hypsometric readings, compared with simultaneous ones taken at a lower government station, the altitude of which is fixed. As a result of these measurements, I claim that this is the highest authentic camp to which tents have been taken, and the highest measured point up to date, at which mountaineers have passed a night.

In regard to Mr. Graham's having made the highest ascent, I need only add that this is, and is likely to remain, a disputed point. That many mountaineers, on the Continent and elsewhere, do not believe in this as the highest climb is certain, in spite of Mr. D. W. Freshfield's arguments in favor of this contention, upon which Mr. Balch evidently bases his own opinions, and which, though specious, are by no means wholly sound. As a disputed claim this ascent cannot properly be placed against more recent authenticated ones, any more than Mr. Longstaff's personally estimated altitudes can be placed against those that have been correctly measured.

Into this controversy, however, I do not propose to enter. In my Nun Kun ascent of 1906 I climbed to over 23,000 feet, and in consequence hold not only the mountaineering record for women, but also a place in the small band of mountaineers who have climbed to over 23,000 feet.

FANNY BULLOCK WORKMAN,
*Officier de l'Instruction Publique de France, Grand Medallist
of the French Alpine Club, F. R. S., G. S.*

BANGALORE, INDIA.

Report of the Recording Secretary for 1906.

ON January 1, 1907, the total membership of the Club was 1601, an increase of 41 over the number reported one year ago.

The Honorary Members numbered 18, — Samuel P. Langley

having deceased; and the Corresponding Members 53, — Miss Mary Lee Ware, Miss Mary Woodman, and Hon. N. P. Langford having been added. There were 233 Life Members and 1297 Annual Members, making 1530 members of the Corporation. During the year nine members of the Corporation deceased, 78 resigned, and 33 were dropped for non-payment of dues. The new members numbered 160.

There were held during the year nine regular, nine special, and one field meeting, the average attendance being 235. There were presented at these meetings, besides official reports and six short papers at the Excursion Meeting in December, nineteen papers, fifteen of which were illustrated with the lantern. Four meetings were given to reports, two to forestry, and seven to general subjects. Three papers were devoted to the Canadian Rockies, two each to New England, Alaska, and Europe, and one each to South America and the Philippines.

The Field Meeting was held at the Crawford House, N. H., June 30 to July 9. Accounts of this meeting and of the excursions of the year will be found in the report of the Excursion Committee.

The Snow-shoe Section was reorganized, a new set of by-laws being adopted. It reelected its officers, Mr. W. R. Davis, Chairman, and Mrs. Albion D. Wilde, Secretary-Treasurer. The membership is now 219. Two trips were made, one to Gorham, N. H., in January and one to Jackson in February.

The annual social meeting was held at Hotel Vendome on Friday evening, February 9, with an attendance of 268. A balance of \$20.96 was paid into the treasury.

One number of APPALACHIA was published, — Vol. XI., No. 2, in May.

During the year the influence of the Club has been exerted in favor of the bill to establish forest reserves in the Southern Appalachian Mountains and White Mountains, for the preservation of Niagara Falls, and for the protection of the Yosemite Valley.

The year 1906 was marked by the gift to the Club, by Miss Mary Woodman of Cambridge, of a large tract of land on the east side of the Saco River, in the township of Buxton, Maine; also by the enlargement of Madison Spring Hut.

Reference is made to the reports of the Trustees of Real Estate, the Councillors, and various committees for work accomplished in the different departments.

Respectfully submitted,

ROSEWELL B. LAWRENCE,

Recording Secretary.

Report of Corresponding Secretary and Librarian for 1906.

THE most important features of the year's work were the definition of the scope of the Club library and the relief of the congested condition of the library room.

It has always been recognized that the Club could not build up a large library, but the exact field that it should cover has never, I believe, been officially established. As it is desirable that a consistent policy should be followed from year to year, the council has adopted the following vote:—

The library of the Appalachian Mountain Club shall represent, as exhaustively as may be, the literature of mountains and mountaineering, and it may also include works of general geographic interest. In addition, it may contain small working collections on subjects germane to the several departments of Club work.

Early in the year the accumulation of unassorted material upon the floor of the library room was carefully looked through. The surplus United States documents were returned to the Superintendent of Documents at Washington. A few books which had a commercial value were sold, and the valueless remainder was thrown away. Some doubtful material is awaiting further consideration and gleaning.

Accepting the kind offer of our Recording Secretary, a few little-used sets, mainly in foreign languages, have been transferred to his office, Room 745, Tremont Building. These books may be consulted by application to Mr. Lawrence or to the custodian of the Club room.

Two tiers of shelving have been added to the intermediate case in the library room, and some changes made in the spacing of shelves in the small case at its end.

By some further discarding of material not within our scope and the utilization of the new shelves, room will be found for a few years' normal growth. When the Club can afford it, the books should be classified by subjects. It is not best, however, to substantially change the present arrangement until it can be done according to a thoroughly modern, scientific plan.

The librarian is under great obligations to Mr. Ritchie for his services in caring for the collection of maps, and to Mr. Bullock for assistance and advice in sorting and arranging the books. Without their aid little could have been accomplished.

The usual exchanges have been received, and members of the Club have shown their continued interest by gifts of books and pamphlets. Twenty-five volumes have been purchased. The usual list of accessions, outside of exchanges, is appended.

GARDNER M. JONES,
Corresponding Secretary and Librarian.

Additions to the Library in 1906 other than by Exchange.

DONATIONS.

[*Authors who are members in Italics.*]

Across the Sub-Arctics of Canada. J. W. Tyrrell. Gift of J. Ritchie, Jr.
Boone and Crockett Club Report of Committee on Game Refuges. Gift of Alden Sampson.

Camps in the Caribbees. Frederick A. Ober. Gift of J. Ritchie, Jr.

Crag and Hound in Lakeland. C. E. Benson. Gift of R. A. Bullock.

Discovery of Yellowstone Park. N. P. Langford. Gift of author.

Eothen. A. W. Kinglake. Gift of J. Ritchie, Jr.

Equatorial America. Maturin M. Balkou. Gift of J. Ritchie, Jr.

Flashlights in the Jungle. C. G. Schillings. Gift of J. Ritchie, Jr.

Geology of Essex County. John H. Sears. Gift of Essex Institute.

Guide to Zermatt and the Matterhorn. *Edward Whymper*. Gift of author.

Guide to Chamonix and Mont Blanc. *Edward Whymper*. Gift of author.

Handbook of Amherst. Frederic H. Hitchcock. Gift of J. Ritchie, Jr.

Hints to Travellers. John Coles. Gift of Benjamin F. Seaver.

Little Brothers of the Air. Olive Thorne Miller. Gift of J. Ritchie, Jr.

Massachusetts' War upon Moth Pests. *J. Ritchie, Jr.* Gift of author.

My Early Travels and Adventures in America and Asia. 2 vols. Henry M. Stanley. Gift of J. Ritchie, Jr.

Natural History of Selbourne. Gilbert White. Gift of J. Ritchie, Jr.

Plains and Uplands of Old France. Henry Copley Greene. Gift of J. Ritchie, Jr.
 Playground of Europe. Leslie Stephen. Gift of Thomas K. Gale.
 Romance Switzerland. W. D. McCrackan. Gift of Thomas K. Gale.
 Sub-Tropical Rambles. Nicholas Pike. Gift of Thomas K. Gale.
 Teutonic Switzerland. W. D. McCrackan. Gift of Thomas K. Gale.
 Three Essays on the Wild Life. *Alden Sampson*. Gift of author.
 To the Mountains of the Moon. J. E. S. Moore. Gift of H. Putnam.
 Visits to the Monasteries of the Levant. Robert Curzon. Gift of J. Ritchie, Jr.
 Voyage to Viking-Land. Thomas Sedgwick Steele. Gift of J. Ritchie, Jr.
 Warblers of New England. C. J. Maynard. Gift of E. E. Norton.
 Woods and By-ways of New England. Wilson Flagg. Gift of J. Ritchie, Jr.

PURCHASED.

Camp-fires in the Canadian Rockies. William T. Hornaday.
 Camp Kits and Camp Life. Charles Stedman Hanks.
 Central Tian-Shan Mountains. Dr. Gottfried Merzbacher.
 Dolomite Mountains. Josiah Gilbert and G. C. Churchill.
 East of the White Hills. M. E. Eastman.
 Fighting the Polar Ice. Anthony Fiala.
 Glaciers of the Alps. John Tyndall.
 In and Around the Grand Canyon. George Wharton James.
 In the Heart of the Canadian Rockies. *James Outram*.
 Joseph Simler et les Origines de l'Alpinisme. W. A. B. Coolidge.
 Lhasa. Percival Landon.
 Lippincott's New Gazetteer of the World.
 Mount Vesuvius. J. Logan Lobley.
 Round Kangchenjunga. *Douglas W. Freshfield*.
 Siberia. Samuel Turner.
 The Mountains. Stewart Edward White.
 The Pass. Stewart Edward White.
 The Tramp's Handbook. Harry Roberts.
 The Tree Book. Julia Ellen Rogers.
 Through Town and Jungle. *Dr. William Hunter Workman and Fanny Bullock Workman*.
 Tourists' Guide Book to the State of New Hampshire. Frank West Rollins.
 The Voice of the Mountains. Ernest A. Baker and Francis E. Ross.
 Volcanoes of North America. *Israel C. Russell*.
 The Voyage of the "Discovery." 2 volumes. Captain Robert F. Scott.

Treasurer's Report for 1906.

The receipts and payments for the year were as follows : —

RECEIPTS.

Cash on hand, January 1, 1906 :	
“ for Mount Washington Refuge Fund	\$96.06
“ “ prepayment of dues and subscriptions	57.30
“ unappropriated	578.83
	<hr/>
	\$732.19
Permanent Fund :	
Life memberships, 5 at \$50	250.00
Field Meetings and Excursions :	
For publication of Guide to Paths and Camps	200.00
Annual dues :	
From 1121 members at \$4	\$4484.00
Admissions :	
From 161 new members at \$8	1288.00
Rooms :	
From societies and clubs	\$20.00
“ donations	5.00
“ rent of keys	6.00
	<hr/>
	31.00
APPALACHIA and other publications :	
Sales of Walks and Rides about Boston	\$70.25
“ “ APPALACHIA, maps, etc.	58.03
Advertising in APPALACHIA	183.11
Payment by American Alpine Club	75.00
	<hr/>
	386.39
Real estate :	
Donations	11.00
Department of Topography:	
Sale of blue print maps and donations	130.24
Department of Art :	
Repayment of insurance on Sella photographs	8.00
Department of Improvements :	
Repayments and donations	45.50
Interest :	
On Permanent Fund, except Thorndike	
Fund	\$327.55
On Thorndike Fund	35.30
“ Reserve Fund	98.89
“ Bank account	60.59
	<hr/>
	522.33
Total unappropriated receipts for 1906	<hr/>
	6906.46
	<hr/>
	\$8088.65

TREASURER'S REPORT.

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PAYMENTS.

Permanent Fund :

Life memberships, 5 at \$50 \$250.00

Reserve Fund :

Mt. Washington Refuge Fund, with interest \$105.26
From current funds 200.00
_____ 305.26

Real estate :

Extension and improvement of Madison
Hut \$802.37
Rhododendron Reservation and Cottage . 209.17
Forestry work on Three Mile Island . . 50.00
Lead Mine Bridge Reservation 29.35
Farrar Reservation 19.65
Parsons Reservation 7.50
Boxes for contributions 40.00
General expenses 63.67
_____ \$1221.71

Rooms :

Rent and care of Club Rooms . . . \$1500.00
Lighting 36.81
New book shelves and grill 44.00
Fittings, supplies, and sundries . . . 93.61
Storage warehouse 21.60
_____ 1696.02

APPALACHIA and other publications :

Volume XI., No. 2 \$616.40
Delivery 124.09
Reprints 7.46
Business and advertising agents . . . 97.98
Index : compilation in full 75.00
Walks and Rides about Boston :
Binding 74 copies \$12.58
E. M. Bacon, royalty 8.03 20.61
_____ 941.54

Library :

Books \$75.89
Binding and sundries 24.66
_____ 100.55

Stationery, printing, and postage :

Register, 2000 copies, and delivery . . . \$273.37
General expenses 668.44
_____ 941.81

Expense of meetings :

Rent of halls \$101.57
General expenses 229.73
_____ 331.30

266 TRUSTEES OF PERMANENT AND RESERVE FUNDS.

Clerical services :		
Expense of clerk	475.90	
Department of Topography:		
Expense of blue print maps	50.95	
Department of Exploration and Forestry:		
Delegate to Washington in favor of White Mountains Reserve Bill	\$63.10	
General expenses	9.89	
	72.99	
Department of Art :		
Insurance of Sella photographs and sundries	9.75	
Department of Improvements :		
Guide-book to White Mt. Paths and Camps	\$46.96	
Work on paths and camps, and expenses	537.36	
	584.32	
Department of Natural History :		
Exhibition, printing, and postage	14.57	
Total current expenses	6441.41	
Cash on hand December 31, 1906 :		
Interest on Thorndike Fund for 1905 and 1906, to be used only by special vote of Council	\$70.60	
Balance of sum received for publication of Guide to White Mt. Paths and Camps	153.04	
Sum appropriated to publication of the Index to APPALACHIA	200.00	
Prepayment of dues and subscriptions	20.00	
Cash unappropriated	648.34	
	1091.98	
	\$8088.65	

Respectfully submitted,
RUFUS A. BULLOCK,
Treasurer.

Report of Trustees of the Permanent and Reserve Funds
for the Year 1906.

PERMANENT FUND. — PRINCIPAL.

1906.	
Jan. 1. Amount on hand from last report	\$10068.95
Amount received from R. A. Bullock, Treas., for Life Memberships : —	
Apr. 2. Miss Mary Sanborn	\$50.00
June 11. Miss Mary E. Haskell	50.00
“ “ Francis L. Banfield	50.00

TRUSTEES OF PERMANENT AND RESERVE FUNDS. 267

Dec. 7. Mr. A. De W. Sampson	50.00	
“ 19. Jarvis B. Keene	50.00	250.00
	<hr/>	<hr/>
Total principal on hand Jan. 1, 1907		\$10318.95

PERMANENT FUND. — INTEREST.

1907.

Jan. 1. Suffolk Savings Bank : 12 months, to Oct., 1906	\$43.89
“ Medford Savings Bank : 12 months, to Nov., 1906	18.26
“ Lexington Savings Bank : 12 months, to Oct., 1906	43.31
“ Eliot Five Cents Savings Bank : 12 months, to Oct., 1906	31.59
“ Franklin Savings Bank : 12 months, to Aug., 1906	36.64
“ Boston Five Cents Savings Bank : 12 months, to Oct., 1906	37.67
“ Institution for Savings, Roxbury: 12 months, to Oct., 1906	35.30
“ Canton Institution for Savings : 12 months, to Oct., 1906	49.42
“ Warren Institution for Savings : 12 months, to Oct., 1906	30.16
“ North End Savings Bank : 12 months, to July, 1906	36.61
	<hr/>
	\$362.85
	<hr/>

1906.

Nov. 17. Paid R. A. Bullock, Treas., as per vote of Council, June 22, accrued interest during year	\$362.85
	<hr/>

PERMANENT FUND.

Dec. 31. Total Principal on hand	\$10318.95
Deposited as follows : —	
Suffolk Savings Bank, Book No. 100,753	\$1287.60
Medford Savings Bank, Book No. 14,915	535.90
Lexington Savings Bank, Book No. 1921	1270.76
Eliot Five Cents Savings Bank, Book No. 32,233	812.36
Franklin Savings Bank, Book No. 70,143	1074.99
Boston Five Cents Savings Bank, Book No. 425,754	1105.19

268 TRUSTEES OF PERMANENT AND RESERVE FUNDS.

Institution for Savings, Roxbury, Book No.		
80,803	1000.00	
Canton Institution for Savings, Book No.		
9015	1273.25	
Warren Institution for Savings, Book No.		
76,456	884.67	
North End Savings Bank, Book No. 26,345	1074.23	
	<u> </u>	\$10318.95
		<u> </u>
RESERVE FUND. — PRINCIPAL.		
1906.		
Jan. 1. Amount on hand from last report	\$2868.80	
Dec. 19. Received from R. A. Bullock, Treas.	\$200.00	
“ “ Received from R. A. Bullock, Treas.	106.00	
	<u> </u>	306.00
		<u> </u>
Total Reserve Fund on hand Jan. 1, 1907		\$3174.80
RESERVE FUND. — INTEREST.		
Dec. 31. Boston Five Cents Savings Bank: 12 months,		
to Oct., 1906	\$53.63	
Canton Institution for Savings: 12 months,		
to Oct., 1906	9.70	
Eliot Five Cents Savings Bank: 12 months,		
to Oct., 1906	35.56	
	<u> </u>	
Interest accrued during year	\$98.89	
	<u> </u>	
Nov. 17. Paid R. A. Bullock, Treas., as per vote of		
the Council, June 22	\$98.89	
	<u> </u>	
Total Reserve Fund on hand Jan. 1, 1907		\$3174.80
Deposited as follows : —		
Boston Five Cents Savings Bank, Book No.		
229,173	\$1519.72	
Canton Institution for Savings, Book No.		
10,793	556.44	
Eliot Five Cents Savings Bank, Book No.		
46,187	1098.64	
	<u> </u>	\$3174.80
		<u> </u>
1907.		
Jan. 1. Total Permanent Fund	\$10318.95	
“ Reserve Fund	3174.80	
“ in hands of Trustees	<u> </u>	\$13493.75
ISAAC Y. CHUBBUCK, } Trustees of the		
CHARLES H. FRENCH, } Permanent and		
REST F. CURTIS, } Reserve Funds.		

The undersigned, the Committee to Audit the accounts of the Appalachian Mountain Club, have examined the accounts of the Treasurer, the Trustees of the Permanent and Reserve Funds, the Trustees of Real Estate, the Manager of Three Mile Island, the Committee on Field Meetings and Excursions, and the Snow-shoe Section, and believe them to be correct, with cash and securities on hand as follows:—

Trustees of Permanent and Reserve Funds	\$13493.75
“ of Real Estate . . . . .	.30
Manager of Three Mile Island	26.25
Committee on Field Meetings and Excursions	292.63
Snow-shoe Section	29.01

EDWARD W. HOWE,
P. H. DOWNES,
TUCKER DALAND,

}

Auditing Committee.

Boston, January 4, 1907.

Report of the Trustees of Real Estate for 1906.

IN conjunction with the Councillor of Exploration and Forestry the hard-wood trees have been cut from the Carlisle Pines Reservation, so as to give prominence to the large pines and to render possible the growth of others. The wood cut was sold, and the amount realized more than equalled the expense of the cutting. There has been a gain also in the beauty of the Reservation and in the increased protection against fire.

In compliance with the suggestion made in our last report, boxes were prepared and placed in the Profile House, Deer Park Hotel, the Fabyan House, the Crawford House, the Mt. Washington Hotel, the Summit House, the Ravine House, and the Iron Mountain House; and upon each of these boxes was a photograph of some path or reservation appropriate to the locality, a short statement of the work done by the Club for the community, and a request for suggestions and contributions. The contributions during the season amount to very little, only a fraction of the cost of the boxes, the largest receipt being in the Summit House box, \$14.95. The proprietors of the Mt. Washington and the Profile Houses express their regret that the contents of their boxes are not larger, and intend another summer to put the boxes in more prominent positions. One contribution in the Summit House box came from Portland, Maine, in the sum of one dollar (\$1), and another in the same sum and in the

same box from Chattanooga, Tenn., both of which contributions were acknowledged. By some unexplained reason we have been unable to hear from the Crawford House box in time for this report.

The power house of the Berlin Electric Light Company, near the Lead Mine Bridge Reservation, has been completed, the dam has been finished, much of the surrounding land has been flowed, the trees and the shrubbery upon the river bank of the Reservation have been cut away, a road has taken their place, the Reservation has been crossed in many places by paths of the workmen, and some cutting has been done. Upon the opposite bank of the river the company has erected a large boarding-house. The beauty of the view of the river and of the mountains from the bridge has been in large part destroyed. The litigation relative to the right of the company to maintain the dam has not come to an end. The plaintiff is Mr. McMillan, who owns the property adjoining the Reservation. In the autumn of 1905 he filed a bill in equity praying for an injunction against the maintenance of the dam. The defendant secured the transfer of the cause to the Circuit Court of the United States. Upon hearing before Judge William L. Putnam, it was ordered that the cause be remanded to the State Court. It is expected that a hearing will take place in this court this spring. If Mr. McMillan shall prevail in securing the removal of the dam, the Reservation of the Club will reap a benefit similar to that received by himself. If he fail, the Club has not waived any claim for damages.

The lumbering upon the slopes of the northern peaks of the Presidential Range has continued, and much injury has been done thereby to our paths. Arrangements have been made by which the vicinity of Glen Ellis Falls and Crystal Cascade will be protected, so far as this year is concerned. For the permanent protection of the beauty of these falls, small reservations should be established.

The plan suggested by the Trustees for the enlargement of Madison Hut so as to provide a separate room for the occupation of women has been carried out. By cutting into the side of Mt. Madison the new room has been provided without increasing the height of the hut, and now it appears even less conspicuous than before. The new room is of the same depth as the old

one, and is twelve feet in width. In the front is a door with a glass window, which can be lowered for the admission of air, and in the rear is a small window, thus making the room light and cheerful. It is provided with six double bunks of stout canvas stretched over strong strips of wood, giving a good spring. The old stove, which had been discarded some years ago and which had remained outside, has been repaired and placed in this room. An inner door has been cut into the old room, which now appears much lighter and more cheerful. The floors of both are upon the same level, and have been concreted with Portland cement, with a slope so as to carry away all water into a drain. The heap of stone which was at the left of the old portion has been removed, and a new buttress built. The building has been provided with new shutters for the windows and the doors. The hut has been locked securely, and notices have been placed upon it. The keys have been left in the Ravine House, and notice has been given in the vicinity that any responsible person, wishing to use the hut, can obtain the keys from Mr. Watson. During the coming summer a keeper will be placed in charge, and compensation will be asked for occupancy. When visited by the Trustees in August last, the hut was in even worse condition than when seen last fall; several windows had been broken, more of the scrub growth around the spring had been cut, and the dump heap in front of the hut was larger.

Complaints have come to the Trustees, this year as last year, both by members of the Club and by others, relative to the condition of the refuge house near the Lakes of the Clouds; but as this house is not in our charge, we have been unable to do anything with reference thereto.

Work has continued upon the Joseph Story Fay Reservation in accord with the recommendations of Messrs. Olmstead Brothers. The Boulder Path along the east side of the Reservation, referred to in our last report, has been opened, vistas have been cut from this path, giving views of the West Branch, and other vistas have been enlarged, so as to give better views of the Pemigewasset Valley, Mt. Moosilauke, and the Profile Notch. The balsam firs have not been mutilated this year so much as in the past; but wooden signs, which were placed within the Reservation, have nearly all been removed. It is probable

that during the coming year an appropriate entrance in rustic form will be provided for the Reservation in accordance with plans made by Mr. Stevens.

Two fire extinguishers for this Reservation have been placed in the Parker Mill upon the understanding with the owner that her employees will use them at once, in case of any fire endangering the Reservation.

There was brought to our attention in the autumn by the Councillor of Improvements the grave and impending danger of the destruction of the forest in the Lost River region in North Woodstock, and the matter was taken at once into serious consideration. After considerable correspondence, it was ascertained that the Publishers' Paper Company of Portsmouth, N. H., is the owner of the land, and that the cutting is being done by the Johnson Paper Company of Johnson, N. H., under a contract with the Publishers' Paper Company. Upon inspection of the premises, it appeared that the cutting of the forest had come already to the very borders of the Lost River, and that a wood road was in process of construction to enable this also to be reached. Owing to the obligations between the two companies, it was a difficult matter to come to any satisfactory arrangement, as each company naturally feared that any deviation from the terms of its contract, however slight, might give rise to litigation. However, an arrangement finally was made by which the Portsmouth Paper Company gave permission to the Johnson Lumber Company to withhold the cutting of the trees until towards the termination of their contract, which has some five years to run. As the Johnson Lumber Company has agreed to this, no cutting now will take place during this winter, at least, upon an area of approximately twenty-three acres, extending between the state road and a straight line about 500 feet northeasterly therefrom, and in length about 1800 feet. It is possible some arrangement may be made by which the ownership of this most interesting region may be acquired by the Club.

A week in December was spent in the Rhododendron Cottage in Fitzwilliam by several members of the Club, and the time was occupied in the burning of the tree-tops and other rubbish, which had been left around the rhododendrons by the lumbermen, in their operations previous to the purchase of the property

by Miss Ware. Much of the danger from fire has been removed; though a great deal yet remains to be done before the Reservation is amply protected. Very much more furniture has been put into the cottage during the year, and it now is suitable for comfortable occupancy during the summer months. Its use during the past season has been larger than for the previous year. Plans have been made for the removal of one of the barns, the repair of the other barn, the enclosing of the woodshed, the change of the attic of the cottage into bedrooms, and the putting in of a wood furnace, so that another year it will be suitable for occupancy during the winter. So soon as possible, a new shelter should be provided for the Mineral Spring. The increasing use of the cottage shows that it is appreciated by members of the Club, and we feel no doubt that the expenditure in repairs and furnishing has been a good business investment. A map of the Reservation has been made by Mr. E. G. Chamberlain.

Notices claiming the building upon the summit of Mt. Kearsarge have been placed upon it this year, as in the past, in order to protect the rights of the Club. No lumbering has yet begun in this vicinity.

No tenant has been found for the house upon the Farrar Reservation; and as the house itself is old and leaks, it is probable it will disappear during the winter.

A statement appeared in the newspapers of the discovery of a rocking stone upon the Parsons Reservation in Warwick. Upon investigation, however, it was discovered that this stone is not upon our premises, but is about half a mile from Moore's Pond.

Three Mile Island has remained in charge of Rosewell B. Lawrence, Esq., as manager, as in the past; and the details of its occupation have been set forth in his report to the Trustees. Unfortunately the time has come when Mr. Lawrence finds it necessary to retire from the management; and the Trustees are confronted by the serious problem of finding an acceptable successor.

The number of Reservations belonging to the Club has been increased this year, through the conveyance to it by Miss Mary Woodman of Cambridge of about 86 acres of land in the town

of Buxton in the State of Maine. William S. Moulton of Hollis has a lease of the premises till March 1, 1908. There are two camps upon the property, one belonging to George L. Emery, Esq., and the other to Gideon Bradbury, both of them placed there without the knowledge of Miss Woodman. This land is mainly pine forest, with some oak, maple, and hemlock trees, and extends along the left bank of the Saco River. At the upper portion the river rushes through a gorge, with high banks sixty feet sheer, in a scene of much grandeur. Upon the Reservation, besides the evergreen forest, are the remains of an old block-house and the graves of some of the early settlers. It is a noble gift by Miss Woodman, prompted by a praiseworthy desire to save for the use of the community a place of high scenic interest, as well as the preservation beyond her own life of a place dear to her because of its association with her ancestors. A map of the Reservation has been made by Mr. E. G. Chamberlain. Members of the Club wishing to visit the Reservation will find good accommodations in the cottage of Mr. T. L. Kimball of Hollis, his cottage being just across the Salmon Falls bridge, and near at hand.

In closing, the Trustees again call the attention of those interested in the forests and in the maintenance of the Reservations to the urgent need of money, and express the hope that contributions may be received which can be used for this purpose.

For the Trustees,

HARVEY W. SHEPARD,
Chairman.

Reports of the Councillors for the Autumn of 1906.

Natural History.

By J. H. EMERTON.

Two meetings of members interested in the work of this Department have been called during the year, on March 6 and October 17. At the March meeting the mountain plants in the herbarium were looked over and plans discussed for summer collecting. At the October meeting the new collections from Three

Mile Island were shown, and several members reported their summer observations.

Three exhibitions were held, which were attended by a large number of members, on April 12 and 13. Mr. and Mrs. Walter R. Davis showed their collection of nature birds and S. C. Rogers his collection of birds' eggs. April 20 and 21 the Councillor showed his New England, spiders with models of several webs. April 22, 23, and 24 there was an exhibition of plants of Three Mile Island and of the upper part of the Mt. Washington range.

The annual exhibition of insects of the Cambridge Entomological Club was held at the Club rooms November 14 to 17.

The exploration of Three Mile Island has been continued. Three additions were made to the list of birds, which now numbers forty-six species. Thirty-eight additions were made to the list of spiders, which now numbers one hundred and twenty species. Two species of house spiders introduced from the mainland have been noticed on the Island for the first time this year. Several members visiting the Island have collected plants to improve and complete the herbarium.

The list of plants has not yet been revised, so that it is impossible to tell how many species have been added. A collection of the mosses of the Island has been begun. In the spring the introduced plants on the Island were looked over, and tags put upon those that had lost their original marks.

At the Club's meeting in the Crawford Notch, July 1 to 8, at the Glen, August 3 to 16, and in the neighborhood of the camps at Hermit Lake, in Carter Notch, and on Imp Mountain, I made large collections of spiders, and found many rare species that had been described from the White Mountains, and several others of much interest in showing the distribution of New England spiders.

The Club's collection of plants has been looked over once during the year and found in good condition. This collection consists of : —

1. Plants of Three Mile Island.
2. A general collection of plants, chiefly North American.
3. Plants from upper parts of the White Mountains.
4. Mountain plants from the Alps.

5. The Hitchings collection of North American Ferns.

6. A miscellaneous collection of ferns.

As Boston is well supplied with general natural history collections accessible to members, it seems useless for the Club to increase its own collections except in lines connected with its special work, and I recommend:—

1. That the collections and records of the plants of Three Mile Island be made as complete as possible.

2. That as complete a collection as possible be made of the plants of the higher parts of the White Mountains.

3. That no gifts of foreign or miscellaneous collections of plants or animals be hereafter accepted by the Club.

Reports of the Councillors for the Autumn of 1906.

Topography.

BY RICHARD A. HALE.

THE department of Topography of a mountain club offers a wide field, from which many subjects may be discussed with varying detail. As the precise duties of the Club topographer may not be very clear to the writer, the indulgence of the members of the Club must be requested in connection with this his first report. At the risk of mentioning what is no doubt well known to many of them, a few important points are here presented.

A collection of standard maps of various parts of the country is an important acquisition to the library of the Club. The authority of the maps, the data from which they are constructed, and the dates of compilation are necessary notes which, if added, prove of value to the collection. New regions that have been explored and trails in various directions, with objects noted, are of importance as records for the Club.

One of the chief attractions after a climb to the mountain tops is the interest in the identification of various peaks that are visible. Judging from experience, some difficulty has been found in obtaining maps which would cover the desired territory, as one portion might be indicated on one map and another por-

tion on some other map, with no opportunity to fit them together without much trouble. One of the first schemes which came to my mind was to endeavor to compile a topographical plan of New England, showing the mountain peaks and other prominent physical features in their true relative position. It was found that a plan of this kind was attempted some years ago, but with unsatisfactory results. It seemed as if with the additional data of triangulation, etc., carried out by the United States Geological Survey, an accurate and satisfactory plan could be evolved; but on further examination it was found that the circle of vision would be so small on a map of any convenient pocket size that the scheme was impracticable. Attention has now been turned to the construction of maps on a large scale with a certain peak as a centre of view, from which the adjacent peaks which are visible should be shown in their true position. For example, from a map with Monadnock as a centre, all peaks visible could be identified with the compass. It is regretted that time and opportunity have not allowed for a more extended development in this direction.

It is of interest to note the work of the United States Geological Survey in connection with other work in New England. In coöperation with the several state governments, topographical maps of Massachusetts, Rhode Island, and Connecticut and portions of Maine and New Hampshire have been completed, and the work on the remainder of the two latter States is in progress. A very small part of Vermont is completed, owing to an apparent lack of coöperation of the state government with the United States authorities; but it is hoped that progress will soon be made in this matter.

Criticisms have been made relating to inaccuracies found in various parts of the completed sheets of the Geological Survey. When, however, one considers the low cost per square mile at which the work is accomplished, it is not surprising that some details are not located in just their proper places. It is hoped that the Survey's work may be continued without cessation.

Although somewhat of a digression from the subject of Topography, it seems desirable to call attention to the importance of the hydrographical branch of the Geological Survey and the work that is being accomplished throughout the country. This

work has been in progress for a number of years, and is familiar to many members of the Club. It consists chiefly in the determination of the flow of the streams and in ascertaining what proportion of the rainfall is available for practical use. Stations for measuring the flow have been established at various points on various rivers, and continuous observations show the amount of water flowing. The results are of great value to the engineer in advising the manufacturer as to the development of his water power, and to the water-supply engineer in ascertaining the amount available for cities and towns. These results are also of great interest to the scientific observer, as indicating to what extent the cutting off the forests is affecting the stream flows. Such observations taken over a series of years would have great value. During the past year the appropriation for this subject was cut down in Congress, and appeals were made which resulted in restoring a portion of it so that the work should be continued.

To return once more to the immediate work of the year, the active duties have fallen as usual on Mr. E. G. Chamberlain. He attended the field meeting at Crawford's (at which the Councillor was unable to be present), and devoted his time to the mapping of the various walks, with the distances, prominent features, and time spent in the trip. Tracings were made, from which blue prints have been taken, and these are in the hands of many of the Club members for suggestions and criticism. Ten sheets were prepared embracing various walks by different parties. These tracings are to be on file at the Club rooms as the nucleus for similar series in other portions of the mountains. Every one is familiar with the painstaking care and skill of Mr. Chamberlain, and the results appear to have been justified in the experiment which has been tried. Some arrangement will doubtless be made by which duplicates can be obtained from the Club at the cost of printing. The Chocorua plan has not yet been completed, but will be taken up again when Mr. Chamberlain has complete data. Mr. Louis F. Cutter has had immediate charge of the maps of the northern slopes of the great range, as in past years. He has had 150 copies of the map printed during the past year, and disposed of them at the usual profit. The tracing from which these prints were made should be revised, but it

has been thought best not to make such revision until the lumbering interests become less active on the northern slopes, so that the paths will be less liable to change of location. Certain additions and corrections have been made to this map, bringing it up to date as far as possible, but a new tracing will eventually be needed, as the old one is considerably worn.

The committee on the preparation of the new guide-book has been engaged in a work which must commend itself to all Club members, in collecting and preparing in most permanent shape descriptions of various paths with prominent features, in various portions of the mountains. Copies of the maps of the northern slopes have been supplied for this committee. It is hoped that the series of maps which have been started this year will be continued, and will prove of practical benefit to the Club. With the various sheets of topographical maps which can be obtained at the present time, trails can be sketched and prominent objects can be located which would enable a description and record to be placed with the Club library, where it would be of practical benefit and an addition to the records. Mr. E. G. Chamberlain has been carrying out the idea in detail during the past years, and his method of using the compass, pacing, etc., between certain points as established by the maps, gives excellent results, and commends itself to all Club members who can coöperate in such work.

It is suggested that a systematic series of photographic views of mountain ranges, peaks, etc., relating especially to the topographic features be collected and arranged in a manner to be easily available. To render the views of value, the point of view, compass bearing of the centre of view, and elevation (as near as can be known) should be a part of the record. It is hoped that Club members will coöperate in the carrying out of this plan.

As the Massachusetts State Topographical sheets had become considerably worn by constant reference, a new set mounted on cloth was obtained for a nominal sum at the State House and added to the Club's library.

The Councillor has endeavored to attend the meetings of the Council and also meetings of the Committee of Guide-Book, and regrets that more time could not be spent in accomplishing more visible results in his special department.

The appended letter from Mr. Chamberlain will be of interest: —

MR. R. A. HALE, COUNCILLOR OF TOPOGRAPHY.

DEAR SIR, — In reply to your request I submit a report of my work for this year. Thirty-three of the Saturday and holiday outing routes have been mapped, and blue prints thereof distributed among participants. One local panorama has been made — from Chandler Hill in Worcester.

At the Crawford House field meeting in July the outing routes were mapped, including paths to Mts. Willard, Webster, Rosebrook, Echo, Washington via Abenaki Valley and Mt. Pleasant, Carrigan, Willey and Avalon, the bicycle path to Bretton Woods, and some minor routes. Blue-print copies were sent to participants.

Much preparatory work done for the September outing at Fryeburg proved useless for this year, as the burning of the hotel compelled a change of base to Intervale. All the walks taken about Intervale were paced out, but are not yet plotted.

In October, at the request of the Chairman of Trustees of Real Estate, I went to Buxton, Maine, and mapped the Woodman Reservation, just acquired by the Club.

Last year I reported much preparatory work for a panorama from Mt. Chocorua. In September I spent six days there, and mapped the path from Piper House via Peak House to summit. The weather proved very unfavorable, and I had only one fairly clear day, and that so windy I could not use an instrument. I lay down and sketched the panorama around the horizon with an opera-glass, estimating angles of objects from known points, of a large number of which I had computed the azimuths. I took some angles from the windows of Peak House as an eccentric station to be reduced to the summit. As one third of the horizon lays in Maine and southeastern New Hampshire, regions unknown so far as accurate data is concerned, there is great uncertainty as to the identity of many objects between northeast and south. I have put a great deal of study into this region, constructing maps uniform with the United States Topographic sheets to fill the vacant spaces. I had prepared to occupy one of the Blue Hills in Strafford County, to use as a base with Chocorua in the triangulation of part of this region to locate points to the southeast, but postponed it to go to Buxton. Preparatory to the Fryeburg Excursion I computed many azimuths from Bald Face and Pleasant Mountains, to be used in a triangulation of western Maine, with special reference to the panorama from Chocorua. But, as explained, the fire rendered this work of no avail. On the Crawford and Intervale

trips many angles and sketches were taken for use at Chocorua, and they proved very useful on that summit. On the Buxton trip I secured much useful data, incidentally, for the Chocorua panorama, and other data that has settled questions that arose many years ago on *old* Kearsarge, and on Mt. Wachusett away off in central Massachusetts. These panoramas are not made, as many members seem to think, each by itself. Each is merely a part of a system of work extending into all the New England States, each one helping many of the others. The Chocorua work has utilized observations I have made on twenty other mountains during the past thirty years.

Very respectfully,

E. G. CHAMBERLAIN.

AUBURNDALE, November 10, 1906.

Reports of the Councillors for the Autumn of 1906.

Art.

BY MARTHA A. VINAL.

IN making my report as Councillor of Art for the past year, I would first acknowledge a gift from our fellow-member, Mr. Alexis H. French, of twenty of his beautiful views of New Hampshire scenery. These have been placed in the book devoted to his pictures of the same section of our country, and are a great acquisition to the photographs already owned by the Club.

At the Annual Reception, on the 9th of February, given as usual at the Vendome, the art exhibit consisted of views of some of the wonderful mountains in this country, as well as the most noted one in Switzerland. Through the courtesy of Professor Fay, we had the privilege of showing photographs of the British Columbian Peaks, taken by Mr. Arthur O. Wheeler, of the Topographical Survey of Canada, and recently presented by him to the American Alpine Club, and Professor Niles kindly loaned many views of the Matterhorn and its immediate vicinity, taken some years ago by Mr. Harry Fielding Reid of Baltimore. Both collections received much attention, especially from those who are interested in making difficult ascents.

Quite a number of photograph albums were on the tables, and were enjoyed by many.

The new Club Pin made its first appearance at this meeting.

President and Mrs. Chamberlain were "at home" at the rooms to Club members and friends on the seventh of May, from three until nine o'clock. During the day, and for the rest of the week, Miss Agnes Leavitt had on exhibition a number of her water colors, and Mr. W. C. South, of Downingtown, Pennsylvania, inventor of the "Solgram process," showed specimens of his work.

For the enjoyment of those attending the "at home" of the Room Committee on November 19th, there was hung on the walls of the Club Room a choice collection of landscapes and sketches in oil by Mr. H. Winthrop Peirce of Andover. There were many unpleasant days while the pictures were on view, so that the number visiting the rooms during the two weeks of the exhibition was smaller than usual, yet the paintings were greatly enjoyed, many people returning the second and third time to see them.

The last, but by no means the least of the art exhibitions of this past year was the one from the brush of Mr. Walter L. Chaloner, at which were presented specimens of the work which he has been doing recently. It would not seem natural if we did not see his pictures once a year at least, and so for two weeks, beginning on the tenth of December, all the available wall space in the room was covered with his paintings. Very many Club members and friends took advantage of this opportunity to inspect these charming bits of scenery. The collection contained many pictures just painted in "Whittier Land," and this group especially attracted much favorable comment.

Reunions of the several parties have been held during the year, and each has been successful in bringing to light some photographs taken during the trip. They proved decidedly interesting to those who participated in the excursions, and perhaps not less so to many others who had the chance of looking at the books of the various members while they remained at the rooms. This is particularly true of pictures of the fall and winter trips, which an unusually large number seemed to appreciate.

Your Committee has to report the completion of the labelling of the Sella Collection, which was begun two or three years

ago. The work was done by Mrs. Tarlton, who deserves our thanks for her kindness in finishing this tiresome task.

The smaller Sella Loan Collection has made but one trip by itself,—that to the North Bennet Street Industrial School, at the North End. As this is the Italian quarter of Boston, it seemed particularly fitting that Mr. Sella's views should be shown here, and that they were appreciated, there can be no doubt. The Superintendent wrote that many of the children had seen snow mountains, and that one little boy, who spied out the word Biella under Mr. Sella's name on the photographs, said at once, "I was born in that town." This shows what minute inspection was given the pictures.

For the first time in several years, the whole Sella Collection has this year been on a round of visits, and has aroused much enthusiasm wherever shown. The pictures were first exhibited in New York City, where for a month they were on the walls of the lecture room of the American Geographical Society, and were visited by 1212 persons, most of whom were among those who could most intelligently enjoy them, according to the report of the committee in charge. From New York the collection went to the Berkshire Athenæum and Museum, at Pittsfield, Massachusetts, for two weeks, and then to the Free Public Library at Newark, New Jersey, where it remained about three weeks. Those having charge of the pictures at their different stopping-places were most appreciative of the favor conferred by us in loaning such valuable works of art.

Reports of the Councillors for the Autumn of 1906.

Exploration and Forestry.

BY HARLAN P. KELSEY.

MEMBERS of the Club have been active in mountain exploration in distant fields as well as in America. Professor Charles E. Fay has kindly provided the following notes for this report:

"In the Canadian Rockies, Mt. Mummery, a fine peak, was ascended by our new fellow-member, Mr. Robert Walcott. In Alaska, Professor H. C. Parker took a leading part with Dr. Frederick A. Cook in explo-

rations on the south side of Mt. McKinley preliminary to Dr. Cook's ascent of this mountain, so far as known, the highest on the North American Continent (placed by Dr. Cook at 20,300 feet). Dr. and Mrs. Workman were again active in India, both ascending two or three virgin snow-peaks and to four hitherto unvisited snow *cols* of 16,500 feet and over, and both surpassing their previous records for altitude. Mrs. Workman attained a record for her sex, 23,260 feet, equalling within a few hundred feet Mr. Graham's record climb on Mt. Kabru (24,000 feet). Their highest camp was at the extraordinary altitude of 21,300 feet, probably the highest yet occupied.

"It may not be presumptuous to feel some measure of satisfaction and reflected honor for the successful ascent of Mt. Ruwenzori (16,619 feet), in Equatorial Africa, since the leader of the party, the Duke of the Abruzzi, and another of its members, Signor Vittorio Sella, are honorary members of our Club."

There have been added to the Department's equipment two forestry hatchets with belts made after the pattern adopted by the United States Forestry Service.

Two exhibitions were held during the year. The first was of tramping and camping paraphernalia, in charge of a special committee. Mr. George N. Whipple, the Chairman, has supplied the following condensed report: —

"From May 15th to 19th inclusive there was held at the Club rooms, under the general direction of Harlan P. Kelsey, Councillor of Exploration and Forestry, an exhibition of tramping and 'one-night-stand' camping outfits. The committee especially in charge consisted of George N. Whipple, Helen E. Endicott, Mrs. John T. Prince, William A. Brooks, Edwin L. Homer, and C. A. Newhall.

"About 130 articles were shown by eight dealers and about 52 articles by nine individual exhibitors. The dealers exhibiting were Abercrombie & Fitch Co., of New York, and William Filene Sons Co., Iver Johnson Sporting Goods Co., Lamson & Hubbard, Henry S. Lombard, Andrew J. Lloyd & Co., William Read & Sons, and Solatia M. Taylor, of Boston. Individual exhibitors were Rufus A. Bullock, Allen Chamberlain, C. H. Chandler, Helen E. Endicott, Edwin H. Homer, Ralph C. Larrabee, C. A. Newhall, Mrs. John T. Prince, and George N. Whipple.

"On the evening of the 17th an experience meeting was held in the Club rooms, briefly addressed by President Chamberlain, Dr. Larrabee, Messrs. Lawrence, William A. Brooks, and H. N. Shepard, on timely topics suggested by the exhibition.

“The daily attendance was more notable for quality than quantity, but it is believed the exhibition was of importance in stimulating interest and in giving opportunity for the interchange of ideas. A small pamphlet prepared by President Chamberlain and Mrs. John T. Prince, entitled ‘Suggestions as to Walking Trip Equipment with a Woman’s Camping List and Note on Alpine Outfit,’ was on sale, and about eighty copies were disposed of.”

To this efficient Committee is due the honor of having given us perhaps the best exhibition of camping and tramping outfits and materials ever held in the Club rooms.

The second exhibition, November 6 to 9 inclusive, was of snow-shoeing equipment and articles used on the winter snow-shoe trip. The Snow-shoe Section of the Club kindly took entire charge of it, and to their Chairman, Mr. W. R. Davis, and Secretary, Mrs. Albion D. Wilde, especially belongs the credit of an unusually successful display in the Club rooms. Mrs. Wilde has supplied the following report:—

“On the evening of the first day there was an informal meeting in the Club rooms, at which members exchanged ideas on snow-shoe topics. Among the speakers were President Chamberlain, Messrs. Ephraim Harrington and Harland A. Perkins, and Dr. F. L. Banfield.

In the exhibition were snow-shoes of all descriptions, from the various patterns used on Club trips to odd, short oval shoes used in the Hudson Bay country. All kinds of foot coverings were shown: the Barker boots, motorman’s arctics, moccasins, and the ordinary snow arctics; also, ice-creepers of the Harrington, Osborn, and Banfield patterns. Leather and canvas jackets, paper vests, beach-jackets and vests, an Alaskan parka, and other articles of clothing hung on the walls, along with Uhlan, watch, and toboggan caps, long-wristed mittens, mufflers, face-masks, lumberman’s socks, etc. Skis, ice-axes, lanterns, knapsacks, and other useful articles completed what was a very interesting display.

“This exhibition, which was undertaken at the suggestion of the Councillor of Exploration and Forestry, was especially intended to show articles worn and approved by members on the ordinary winter trips of the Club.

“In connection with the exhibition the Snow-shoe Committee issued, for free distribution, a three-page circular entitled, ‘List of Equipment for Snow-shoe Trips,’ containing useful suggestions for beginners.”

These annual or biennial exhibitions, of such great interest and value to the members, have become a feature of this Depart-

ment, and it is hoped they will be continued. The Councillor wishes here to express his gratitude to the committees and exhibitors whose earnest labors have made such results possible.

Forestry has again occupied the chief attention of the Department. The Carlisle Pines Reservation is now practically safe from forest fires, the underwood and a large share of the hard woods having been taken out. This landscape forestry work has made it possible to view these splendid trees as a group, rather than as isolated specimens, and the younger pines now have opportunity to grow and perpetuate the reservation.

Some forestry work has been done on Three Mile Island, though unfortunately the first thinning and clean-up is not completed, and the island is not yet entirely safe from fire.

On the Joseph Story Fay Reservation numerous vistas of mountain and valley have been opened up, and it is hoped that adequate fire protection may soon be given this reservation.

The new Woodman Reservation on the Saco River in Maine was visited and the forestry conditions studied. A good forest growth, largely of white pines and some hard woods, was found on this tract needing serious attention, both from an economic and the landscape forestry standpoint.

Arrangements have been made to do considerable work during December towards protecting the Rhododendron Reservation at Fitzwilliam, N. H., from fire.

On behalf of the Trustees of Real Estate, and in company with its Chairman, Mr. Shepard, a trip was made to "The Lost River," on Moosilauke stream in North Woodstock, N. H., with a view to securing the preservation of the forest surrounding it. A tract of about 23 acres was laid out and corner trees marked with the Club's private mark. The owners have agreed to refrain from cutting within the boundary indicated, and thus another of the most interesting and beautiful natural features to be found in the White Mountains is saved, — at least for the present.

The forests immediately around Glen Ellis Falls and Crystal Cascade in the White Mountains are still intact, and we have recent assurances that the present owners will continue to protect them. But cutting has been done dangerously near by, and until they have been acquired as public reservations by the Appala-

chian Mountain Club or other trustees, their permanent safety is in jeopardy.

The White Mountain and Southern Appalachian Forest Reserve bill is still before Congress, and this winter will no doubt see its final passage or defeat. There is still something members can do in its behalf, which is, to write personal letters urging their Congressmen to work and vote for its passage.

The work of the Councillor during the last three years, and his connection with the Board of Trustees of Real Estate, impresses upon him the fact that the work of his Department is peculiarly coördinate with that of this Board. If new reservations having considerable forest areas come into the possession of the Club, his duties will be increasingly under the direction of the Trustees, and much more active forestry work will then be necessary.

Furthermore, forestry in its geographical bearings is becoming more and more important to New England and the country at large, and the Club should take an increased interest in this subject.

It would be interesting and instructive to hold a forestry exhibit during the coming year, to include photographs of trees and forests, processes and results of deforestation and reforestation, and lumbering and forestry operations; together with collections of tree sections, tree products, tree seeds, botanical specimens, forestry implements, etc.

I gladly pass this suggestion on to my successor for his consideration, if haply he feels the prerogatives of the office leading him into fields of wider activity.

TWO SUGGESTIONS FOR MOUNTAINERING OUTFITS. BY ALLEN CHAMBERLAIN.

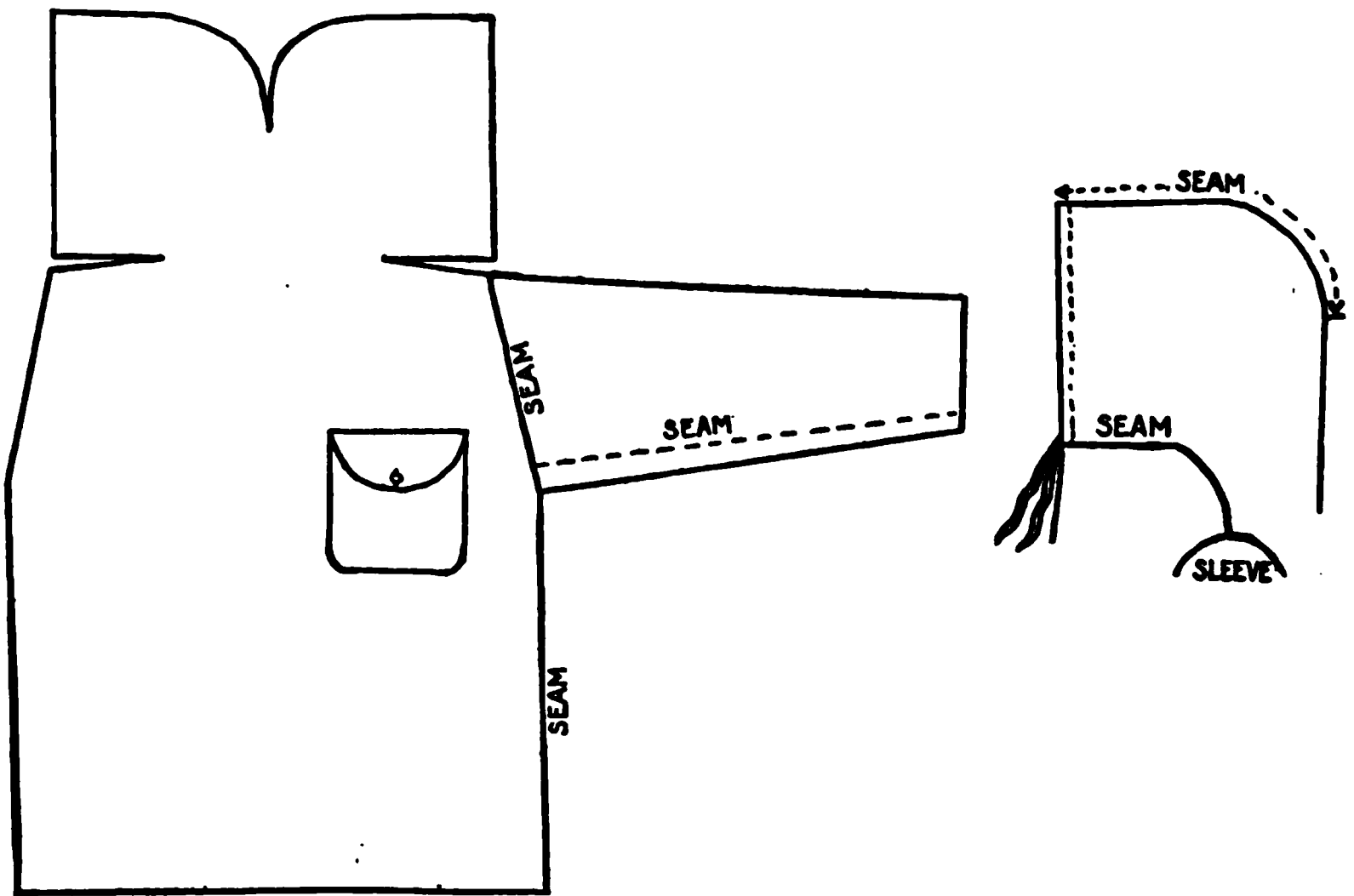
The Alaskan Parka. — An excellent outer garment for winter mountaineering, especially for trips above timber line, is the Alaskan parka. It is a shirt-like frock, light, wind-proof, and reasonably storm-proof. These parkas are worn by our troops in Alaska, and for that service are made of an extra heavy blue denim, unlined. Such a garment is not a warmth giver, but a warmth retainer and wind-proof. A warm sweater should be worn under the parka.

The simple Esquimaux hood is one of the best features of the parka. The garment is simple in construction, and readily made by any one who can sew.

As the accompanying pattern shows, it consists of few parts and no complications. There is a back breadth, of which the hood is an integral part; a front breadth, which is the counterpart of the back breadth minus the

hood, and two single-seam sleeves. A large pocket patched on the left breast is handy.

There is no opening at the neck except through the hood. The face opening of the hood is provided with a puckering string, which enables the wearer to draw the opening down to a mere breathing-hole. The army parkas are trimmed around the face of the hood and around the cuffs with fluffy, husky fur. This is unnecessary, and sometimes uncomfortable, as it ices up badly in a frost cloud, and freezes to beard and eyebrows.



A common cloth cap worn under the hood is a sufficient head-covering. The writer has even worn a light felt hat with entire comfort. The parka should be belted around the waist like a Russian blouse. It is suggested that if the fur is omitted at the cuffs, the sleeves should be made to button closely around the wrist like a shooting-jacket.

A Practical Hood. — One of the most useful articles in the camper's outfit is a silk bandana. It need not be expensive, — a good one can be had for a dollar, — but it should be of generous proportions ; a good big one would measure 26 by 28 inches. It can be made to serve many purposes; among other things it makes an excellent nightcap. Probably a handkerchief is used for this purpose oftener than anything else, but unless you know how, you are liable to wake up in the night to find that your cap has escaped from you.

A few years ago I was taught how to make a hood from a bandana, one that will not come off. It has also served me well to keep head and ears warm when snow-shoeing and driving in bitter weather. I have passed it along to many of my fellows, but it is worthy of being known to more. It is a cowboy's device.

For the purposes of this description, let us take a bandana that measures 26 by 28 inches, which is an ordinary stock size. One measuring two, or even three inches less all around would probably suffice.

The first move is to spread your bandana out flat — on a table if you are in the house, or on your blankets if you are in the open. You have noted that bandanas are not equal sided. Then spread it with its shortest length running from you.

Next gauge the depth of your head, that is, the distance from forehead to crown. We will assume that it is seven inches.

Take hold of the near corners and fold the bandana over from you seven inches. Don't try to be too exact with these dimensions. An inch one way or the other will not count.

Now take hold of the newly made bottom corners. Lift the bandana up by these corners and *turn it over bodily*. When you put it down thus turned over, your seven-inch fold will be underneath, and at the side farthest from you.

You should still be firmly pinching those corners, and while you have them fast, bring them toward you to meet in the middle of the lower edge, thus making two right triangles.

Next take hold of the outer corners and proceed to roll up the edge, *rolling from you* and rolling snugly, and continue to roll until you uncover the edge of the first fold of all that you made.

The hood is now complete and you have but to don it. The back of the hood is facing you as it lies. The rolled-up ends are the strings that are to go around your neck and tie under the chin. The edge that you just uncovered is the brow band.

To put it on, keep fast hold of the ends, lift the hood, put your head into the opening between the brow band and the neck roll, and pull it down. Knot the ends under the chin, and it is done.

This puts a double fold of silk over the ears, and makes a rolled muffler round the throat. The silk being thin and smooth, a hat can be pulled on over the hood without difficulty.

Reports of the Councillors for the Autumn of 1906.

Improvements.¹

BY HARLAND A. PERKINS.

AT the close of another year's work in the Department of Improvements the Councillor cannot but look with justifiable pride

¹ On account of severe illness at the time, Mr. James Sturgis Pray, Councillor of Improvements from 1902 to 1904, was unable to present to the Club a report covering the work accomplished during the latter year. Recently Mr. Pray has filed with the Department in card index form a brief of his correspondence during that period, thus completing the records of the Department, which are available at all times to Club members who may be interested.

on the work accomplished, an account of which he presents in this report of progress. Not that the work done is as great as it should be, or well done other than in a comparative sense; but considering that all that has been accomplished has been at a cost of slightly more than \$500, with the coöperation of a few busy but enthusiastic members, in a comparatively short season, along definite lines, and with a preconcerted plan, in those senses good has come out of the year's work.

The increased appropriation available the past year has permitted every path upon the Club's list, as well as some not scheduled, to have more or less attention, while there has been added to the official path mileage, the Glen Boulder Path, 4 miles in length, making the present total 128 miles, with a number of other paths awaiting acceptance. In addition, about 20 miles of spotted trails have been constructed.

Weather conditions have a greater effect on the work of the Department than perhaps might be appreciated at first thought, for it was the Councillor's misfortune to encounter wet weather on all but one of his trips of inspection during the spring, and on that one deep snow was a hindrance, so that the work of clearing the paths in some sections was delayed until after the first of July. Four trips were made during the season for path work and two on guide-book matters.

It is evident from even a casual survey of White Mountain paths that there are two forms with which the Appalachian Mountain Club has to do: the first, Official Paths, which the Club gives notice of its intention to maintain; the second, Supplementary Paths, which it may maintain or assist in maintaining, or which it may relinquish without notice, having accepted no responsibility.

Paths of the former class, including trunk lines and local paths, are listed in the Club Register and total about 132 miles. Supplementary Paths, of which there are about 28 miles, seem naturally to divide themselves into two classes:—

1. Probationary, which when brought to the proper standard may become official paths upon acceptance by the Council.

2. Temporary or Ephemeral, usually spotted trails only, which may pass through regions soon to be lumbered and so possessing only passing interest.

Representing the first class may be mentioned the Osgood Path; for the second, the new Pemigewassett Wilderness trails.

The present Councillor believes thoroughly in the wisdom of the policy of "trunk lines," as advocated by his immediate predecessors; but does not feel that this rule should not have its exceptions in cases where a local path of great value, which cannot be maintained by local initiative, is offered to the Club. Unless, however, there is a great increase in the funds available for extension of path work, this factor alone will in most cases serve to determine the advisability of adopting additional paths in the future. There are, however, and have been for a long time, certain paths for whose poor condition the Club gets the discredit, yet whose proprietorship or care is not confided to our organization. Notable among these is the Crawford Bridle Path, of whose condition constant complaints have been received in spite of efforts put forth by the Crawford House management to remedy the difficulty, seeming to show perhaps on their part misdirected energy rather than neglect. Recent negotiations have resulted in an offer of substantial aid yearly from the hotels, if the Club will assume proprietorship and make a yearly appropriation for this particular path, and the Councillor is of the opinion that at least the section along the ridges between Washington and Clinton should come under Club supervision, for this portion has been the greatest source of complaint.

Like action might be taken in securing the ownership of the path up Lafayette, and financial assistance from the Profile House management for its care, as this path is, and has been for some years, a constant menace to trampers on account of rolling stones. This added link, with the Franconia Ridge Trail already in the Club's possession, would give a through line over these summits twelve miles in length from the Profile House to Henry's Railway in the East Branch valley, the new camp on Liberty being a convenient half-way point. The railway end of this path is only a little more than a mile from the Hancock branch. Up this extends the line of the Swift River Trail, forming in reality a projection of the Franconia Trail through to the Albany Intervale.

With advantage similar action could be taken in the adoption of the path up Mt. Moriah from Gorham, completing the control of the Carter-Moriah Range Trail, which would form a through

line from Gorham to Jackson Road, a distance of over 20 miles, with two new and comfortable camps en route.

Our through system of paths has received a great accession in the opening of the Carrigain Notch-North Fork and North Fork-Willey Pond trails, which make it possible for the tramper to reach the southerly end of the hitherto inaccessible Twin Range Path, both from the south and east. These trails have not been officially adopted by the Club on account of the possibility of their being logged over in the near future, and are consequently listed as supplementary paths.

At no time in the past decade has the encroachment of the lumberman seemed so threatening to the Club's interests as it does at present. Into the Albany Intervale from Conway a railway has been constructed along the Swift River nearly to Shackford's, and thence a mile up Oliverian Brook toward Square Ledge, and already the fine spruce growth along the Champney Falls Path on the north side of Chocorua has been badly damaged. On the Northern Peaks, as if it were the final gasp of the expiring demon, standing timber so remote and inaccessible as to be considered perfectly safe is being cut with ruthless hand, while paths whose integrity the loggers had practically guaranteed are being cut over in a most crude and wasteful manner. The same is true in Pinkham Notch, where for the second time within a year the Tuckerman's Ravine Path is threatened, and operations from the lumber camps near the Ox Bow on the Ellis have overrun the picturesque Glen Boulder Path. From present indications, the greatest value to New Hampshire forests from the White Mountains Reservation bill, should it pass the short session, would not be in saving (for they are almost beyond remedy), but rather in the line of reforesting cut areas and preventing the spread of forest fires.

In the care of cylinders and register rolls the Councillor has received, as in the past, the able and enthusiastic assistance of Rev. Raymond M. Dow Adams. Mr. Adams, in his report, raises the question as to the wisdom of maintaining cylinders on either accessible or frequently ascended summits, and we are inclined to believe there is food for thought in the question. Judging from past experience, cylinders so located become but the receptacle for all sorts of pencilled rubbish, and so of little value as

records. Rolls have been returned during the season from Carter Dome, Hight, Jefferson, Adams, Madison, South Baldface, North Moat, Sandwich Dome, Whiteface, Paugus, Passaconaway, and Carrigain in New Hampshire, and Snow Mountain and Mt. Bigelow in Maine. The cylinder on Pleasant Dome was found intact late in June during a visit by the Councillor, but was reported missing by members of the Field-Meeting party, only a week later. The cylinder maintained at Hermit Lake Camp was, late in the season, reported missing, as was also that on Mt. Adams, while that belonging on Mt. Monroe reposed safely in the Refuge Hut! Members finding registers full are requested to remove the same, mailing them to the Councillor, and also to notify him when any are missing. Mr. Albert H. Moore has rendered valuable assistance in caring for the registers on the Northern Peaks. New registers have been placed by Messrs. Pray and Tuckerman on Mts. Hancock, Anderson, Nancy, and Bemis in the valley of the East Branch of the Pemigewasset.

In addition to an unusual amount of field work during the past season, the Department has had added to its duties a legacy from predecessors, the work of preparing the new guide-book to paths and camps. Early in the year a meeting of those interested was called by the Councillor, at which the subject was thoroughly discussed and an advisory committee appointed, consisting of Messrs. Ralph C. Larrabee, Warren W. Hart, Richard A. Hale, and Henderson Kellogg. It soon developed, however, that the material at hand was of comparatively little value, and that the coöperation of members in the work, with a few notable exceptions, was not to be reckoned on. So the Committee, realizing perhaps for the first time the size of the work, set itself seriously to the task, and determined to publish, in season for last summer's use if possible, material covering Mt. Washington, the Northern and Southern Peaks, the Carter-Moriah, Twin, and Rosebrook ranges, — that is, those composing the largest section not covered by local guide-books. But for the unsettled conditions on the Northern Peaks caused by lumbering operations, this program would have been carried out; in fact, all the material except that covering this section was put into print, but this one region delayed the work to such an extent that publication for immediate

use became out of the question. Taking advantage of the time thus gained, the Committee determined to add to the material already at hand the balance of the easterly half of the White Mountains, comprising sections "About Randolph and Gorham," "Montalban and Rocky Branch Ridges," "Mt. Carrigain and Vicinity," "About Jackson" and "Lower Saco Valley," and to publish the whole in convenient and durable pocket form after the style of the Conway and Coolidge Climbers' Guides to the Alps — including therein blue-print maps of the Northern and Southern Peaks. Meantime the work has progressed satisfactorily, and the prospect seems good for publication in the early part of 1907 of a work of some 125 pages.

The following, in detail, is the condition of the various paths and camps, each region being taken separately.

PATHS ABOUT RANDOLPH: Lowe's Path and the Air Line with their respective branches were cleared by Thaddeus Lowe, who also gave Madison Hut its usual spring cleaning. Fewer complaints have this year been received on conditions at the Hut, which I trust may augur better things still the coming year, with the enlarged structure in the hands of a capable caretaker, and the whole under the able supervision of the Trustees of Real Estate.

Lumbering operations crossed the upper part of the Air Line on Durand Ridge, and this fact more than any other necessitated quite a little labor on that path, though the lumbermen, following out their action of the year before, did much clearing themselves, without solicitation on our part. Lumbering along the Club's Castellated Ridge and Cabin-Cascades paths having been reported as finished, these paths were reopened, after several years' closure, but reports late this fall indicate a renewal of operations higher up on the steeper slopes that will cause greater havoc, and leave matters if anything in worse condition than before.

The Osgood Path leading up Mt. Madison from the Glen House, so popular in the prosperous time of that hostelry, was also reopened for travel, but the lower part, particularly in the logged region, is unsatisfactory, and will, the coming spring, be shortened and relocated. The E. Libby & Sons Co., owners of the Glen House, coöperated in this undertaking by furnish-

ing two men to work with Vyron Lowe, under whose directions the reopening was accomplished.

The Pond of Safety and Ice Gulch paths, which had for several years received little attention, have been put in good shape by Thaddeus Lowe, and they can now be followed without difficulty.

MT. WASHINGTON: The past summer witnessed the continuation of the Glen Boulder Path (cut by Vyron Lowe for Miss Harriet E. Freeman in 1905) around the Gulf of Slides joining the Club's trail on Boott Spur, Miss Freeman sharing the expense of the extension. This path, which was adopted as a Club path at the October meeting of the Council, promises to be one of the most popular routes to the mountain, particularly from the direction of Jackson. An unfailing spring at a half-way point adds much to the enjoyment of the path, and the Councillor has already received a number of enthusiastic letters from appreciative Club members who have made the trip. The trail leaves the Glen road three minutes south of Glen Ellis Falls stage landing, and ascends rapidly the second spur south of Boott Spur through fine large growth, in a little over an hour coming out of the scrub on the end of the Spur, just below the immense Glen Boulder, from which point there exists a most comprehensive view, extending from Chocorua around to Washington. Then a half hour up the open spur, a half hour of low trees, the spring, Slide Peak (a low eminence at the head of the Gulf of Slides), then knee-high scrub followed by the long, clear route for three quarters of an hour up the Spur to the rocks, briefly sums up the features of the path. The Club's Boott Spur Path is reached just beyond the crest of the Spur. This path is about three and three quarter miles in length.

As was forecasted in last year's report, the indefinite and uncertain trail into Huntington's Ravine has been cleared and plainly marked to the lower end of the débris slope at the foot of the main gully, just to the right of which the ascent is usually made.

Tuckerman's Ravine and Raymond paths have both been cleared of the winter's accumulation, and the former, which on its lower part was logged over last year, has been relocated, through the kindness of Mr Charles Philbrook, who has charge

of the lumbering operations. The path now follows the brook for quite a distance above Crystal Cascade, and is thought by many to be even more picturesque than before. George L. Howard of Jackson, who has done the work on these paths, has replaced the paint spots up the cone with prominent cairns, which are less liable to be overlooked in frosty weather. Hermit Lake Camp has had minor repairs, and will require the coming season a new floor to replace one partially masticated by the hedgehogs. The Boott Spur Path has required little attention, though the cairns should be repaired in the near future.

The Refuge was thoroughly cleaned and the blankets taken down, washed, and returned. Less trouble from itinerant campers has been reported this year than for several seasons, though the structure is still a source of irritation to the Summit House management.

CARTER MORIAH RANGE: This path has received its usual attention, and is reported in unmistakable condition. Imp Camp has been rebuilt as a bark shelter by Vyron Lowe, in a new location not far from the old site, and was very favorably commented upon by parties from the Glen Camp. Carter Notch Camp is still popular, in spite of poor combustion existing in the neighborhood of the chimney. Rebuilding the chimney at the end of the building, topped with a ventilator to prevent down draught, and the installation of a stove are the only remedies for this difficulty, in the opinion of the Councillor. A good floor would add much to the cleanliness of the place, but would be of doubtful permanency on account of hedgehogs. A lattice carried around underneath would greatly improve the appearance by overcoming the stilted effect now so pronounced.

Jackson-Carter Notch, Wildcat, and Nineteen Mile Brook paths have been cared for by George Howard, and are easily followed, though the latter is always wet.

AROUND CRAWFORD NOTCH: Preparatory to the Field Meeting in June, the Mt. Webster and Mt. Jackson paths were cleared and marked at an expense of twelve dollars, which was borne by the meeting. Should the Club decide to take charge of the Crawford Bridle Path, or the portion along the summits, the extension from Clinton on to Jackson and Webster suggested by previous Councillors would add an interesting link to

this grand ridge trail, besides making possible a delightful circuit from the Crawford House, ascending Webster, then across to Jackson and Clinton, thence down the Crawford Path to the starting-point. It would also make possible a complete trip over all the Northern and Southern Peaks, and thus offer new opportunity for record trips.

The Mt. Willey Path has been relocated so as to start directly from Willey Station, utilizing the Willey Pond Path. When about a mile up, by a short branch to the right, it joins the old path, which is followed up the steep slide to the summit as before.

LOWER SACO VALLEY: The Intervale Improvement Society has, at an expense of ten dollars, cleared and marked for the Club the North Moat Path, while the part over the summits and down to the Swift River road has received the usual attention from O. S. Smith of Passaconaway, who has also given the Bear Mt. Notch Trail needed repairs. Mt. Carrigain Path was cleared by W. Frank Carleton of Jackson, and from comments received from Club members and others, the Councillor would judge it to be in excellent condition.

SANDWICH RANGE: At Wonalancet, the Outdoor Club, acting for the Club, has repaired Passaconaway Lodge and cleared the Loop. At Waterville, Mrs. Elliott has caused attention to be given to the Sandwich Dome and Institute paths.

Mr. W. S. Edmands placed signs furnished by the department on the McCrillis Path up Whiteface, and on the path from the south up Sandwich Dome. Both these paths need attention, as there is at present no one responsible for their maintenance.

Swift River Trail and the Champney Falls and Institute paths (Albany end) as usual have been looked after by O. S. Smith of Passaconaway, who, at his own expense, has constructed a cut-off (avoiding Camp 6) from the last to the first mentioned, whereby a saving of two miles may be made between Waterville and Shackford's, and a much more interesting country traversed.

FRANCONIA RANGE: Liberty Camp on the range trail has been completed and the extension over Flume and Osceo made more plain. As an experiment, a trail has been cut by the North Woodstock Improvement Association, acting for the Club, which leaves the head of the Flume and strikes the old

trail some distance below the spring and camp. Should this route prove popular, the uninteresting old trail up Liberty will probably be abandoned.

Lumbering operations this fall threatened the picturesque Lost River. The Councillor, learning of the fact, communicated with the Trustees of Real Estate and summer residents of the vicinity, with the result that the Trustees visited North Woodstock and are at present negotiating with the owners of the property with a view of preserving the tract.

TWIN RANGE AND WILDERNESS TRAILS: Perhaps, after the Glen Boulder Path, the most important work accomplished this year has been the opening of the spotted trails through the Pemigewassett Wilderness. This forest, so soon doomed to fall before the lumberman's axe, should be visited within the next year by every Club member who can possibly do so. It is to facilitate such visits, as well as to render more available the Twin Range Path, that this work was projected. Radiating from the forks of East Branch of the Pemigewassett, trails now lead (or will by early spring) over the Twin Range to Twin Mountain House, up the North Fork, and out by way of Willey Pond to Willey Station, or by Zealand Notch to Fabyan's; or up the East Branch through Carrigain Notch to the Mt. Carrigain path and thence out to Livermore and Sawyer River Station. By utilizing a good clean surveyors' path for about two miles downstream from the Forks, one may reach Henry's lumber railroad at a point two miles above Franconia branch; thence the railway may be followed to North Woodstock.

Cleared paths with few exceptions have not been considered for this region, the Councillor believing the spotted trail to be much more appropriate and less disfiguring. Good camping sites abound and water and fuel are everywhere plenty, while the fisherman is here in his glory.

New work suggested for the coming year, in addition to the usual amount of clearing, comprises the relocation of the lower end of the Osgood Trail; a further improvement and slight extension of the Pemigewassett trails to the Forks, and more signs for other parts of these trails; the possible cutting of a trail along the west bank of the Little River, to make the Twin Range Path available from the north during high water; some

slight cutting and signs for a path now existing up Stairs Mountain (Giant's Stairs); a possible extension of the Franconia Range Path on to Garfield and down to the railway; an improvement in the way of better marking and a possible extension of the Crawford Path to Jackson and Webster; repairs to Carter Notch and Hermit Lake camps and the Refuge; a line of cairns up the head wall of Huntington's Ravine; and, should lumbering on the Northern Peaks cease, a reopening in unmistakable condition, but not as "boulevards," of all of the Club's paths in that region.

In closing, the Councillor desires to acknowledge his indebtedness for able counsel and assistance to fellow-members of the Club, particularly to the Committee on the Guide-Book, and to many who, though not members, yet, through their interest in a common cause, have been glad to help, whom he cannot mention individually, but whose name is legion.

COÖRDINATE WORK IN IMPROVEMENTS FOR 1906.¹

At WONALANCET the admirable system of paths now existing has been further improved and some very important links added.

Through the generosity of Mr. Lawrence a path has been constructed from the height of land on the Old Mast Road near the Mt. Washington outlook, to the summit of Paugus, forming another link in the projected ridge trail, which will ultimately traverse the Sandwich Range from Chocorua to Sandwich Dome. In addition, a path has been cut from near the beginning of the Big Rock Cave Path to the above-mentioned path, which it strikes about midway between Paugus and the Outlook, thus making a circuit from Wonalancet via the Old Mast Road. A route from the summit of Paugus toward Chocorua, ending at the Bolles Trail, has also been explored.

The Outdoor Club has also coöperated with the Waterville people in opening a path to that place via Flat Mountain Pond. The path leaves Whiteface Intervale, has comparatively slight elevation, and thus forms a low level connection between these two resorts, which cannot help becoming popular.

¹ In order to keep the members of the Club informed as to the full extent of path and camp building in the White Mountains, a statement of the work done outside of the Department by other organizations and by individual initiative is appended to the report of the Councillor.

The revised Guide and Map of the Wonalancet region, on which much labor has been already bestowed, is expected to appear during 1907, and it is in anticipation of this publication that so much work has recently been accomplished.

At WATERVILLE the most important work has been the opening of the Flat Mountain Pond Trail connecting with Wonalancet, the measuring, clearing, and extension of the Woodbury Trail from Elliott's to Whiteface, and the placing of distance and direction signs. This latter trail formerly joined the Sleeper Trail, connecting Whiteface and Tripyramid, and followed same to Camp Shehadi, a total distance of seven and one quarter miles. The new extension leaves the Sleeper Path about three quarters of a mile before Shehadi is reached, and leads over the westerly summit of Whiteface, joining the Rollins Summit Trail and following same to the camp, saving some altitude and nearly one eighth of a mile of distance. The work was accomplished by Messrs. Jenks, Blood, and Blaney of the Waterville Athletic Association. The section of the Flat Mountain Pond Trail from Waterville to the pond was cut by Mr. Stearns of the Waterville Athletic Club, at his own expense. It leaves the Woodbury Trail at Cascade Brook, and utilizes old logging and other roads, having but slight elevation at any point.

SOUTHERN PEAKS. Working from Bretton Woods, Mr. J. Rayner Edmands, whose activities on the Northern Peaks have been limited by the lumbering, has made preliminary explorations, looking to the establishment of a link connecting the Mt. Pleasant Path with the Crawford Path, avoiding the summit, and joining the latter path north of Mt. Pleasant. He has also explored the route for a path leaving the level part of the Crawford Path on the westerly side of Mt. Washington, passing around the cone, crossing the railway, and joining the Gulf-side Trail to the Northern Peaks between Washington and Clay.

Mr. Frederic Tuckerman, whose summer residence is at Glen, in the SACO VALLEY, has accomplished much important path work during the past few years, but little of which is known, and for that reason not appreciated by the climbing fraternity. Perhaps the most interesting is the path leading up Stairs Mount (Giant's Stairs) from the Rocky Branch Valley, a distance of about two and one half miles. Some additional signs and clear-

ing in a few places are necessary, and the Councillor hopes to be able in the spring to coöperate with Mr. Tuckerman in the completion of this interesting work.

Mr. Tuckerman has also within the past few years been instrumental in placing Club registers on several remote and inaccessible peaks, among which this year are Hancock, Anderson, Nancy, and Bemis.

As usual, Mr. John Anderson has been very active in work about BRETTON WOODS, including the location of the route of a possible new road between Cherry and Dartmouth mountains avoiding the climb of Mt. Cherry now necessary, and has given the Notch, through which it will pass, the name of Pondicherry, thus preserving the original name of Cherry Mountain. In addition, Mr. Anderson has located a trail around Little Mt. Deception, leaving the Cherry Mountain road at a point just above the sign which indicates the old wagon road up the northwestern slope of Little Deception. An old logging road is at first utilized, the path diverging from it where the going is bad and finally connecting, in the pass between the Deception Peaks and Little Deception, with the path from Bretton Woods to the Deception Peaks, slightly north of Camp Brackett. On the path from Bretton Woods to the top of Little Deception a loop has been completed near the summit, opening some fine view-points. Mr. Anderson has also located a route for a road to connect Bethlehem Junction with the new road to the Profile House.

Report of the Excursion Committee for 1906.

THE Committee on Field Meetings and Excursions organized with Edward Little Rogers, Chairman, William A. Brooks, Secretary, and George D. Newcomb, Treasurer. Ten regular meetings were held, the first on February 16, 1906, and the last on January 8, 1907. A full attendance was had at four of these, the average being six.

Nine excursions, ten all day, and forty-one Saturday afternoon Outings were planned. Thirty-eight afternoon Outings have been taken with an average attendance of 54. Nine all-day Outings had an average attendance of 55½. Three afternoon and one all-day Outings were given up on account of inclement weather.

The total number participating in the Excursions was 932, as compared with 694 persons carried last year ; in the Outings it was 2547 as compared

with 2502 in 1905. In each case it is the largest number carried in the same period within the Club's history.

Abbreviated reports of the several excursions and a tabulated synopsis of the same and of the Outings is herewith presented.

EDWARD LITTLE ROGERS, WILLIAM A. BROOKS, CHARLES P. CASSON, PARKER B. FIELD, FREDERICK H. MATTHEWS, GEORGE N. NEWCOMB, ARTHUR H. TUCKER,	} Committee on Field Meetings and Excursions.
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The Memorial Day Excursion was under the leadership of Messrs. Edward Moffette and Frederick H. Matthews. A party of fifty left Boston on Saturday, May 26, for RUMNEY, N. H., and were conveyed thence in carriages about five miles to the Stinson Lake House. A steady rain prevented proposed trips until Tuesday morning. Despite the inclemency of the weather, however, many of the members walked to various points of interest. Tuesday was a bright, clear day, and nearly the entire party drove a distance of twelve miles to West Campton, enjoying the beautiful views of the entire Franconia Range and the Sandwich Mountains. Lunch was eaten at the Hillside House, after which some twenty-three walked back over the ridge and found carriages in waiting for their return; the balance of the party enjoyed the fine ride back to Stinson Lake via Rumney, a distance of twenty-two miles. Wednesday, under the leadership of Mr. Ritchie, twelve ascended Stinson Mountain.

The party returned to Boston on Thursday, reaching there in the late afternoon.

Sixty persons participated in an Excursion to YORK BEACH, having as their objective Mt. Agamenticus, Bald Head Cliff, and the shore from Maine to Massachusetts. Mr. Parker B. Field was the leader.

The party left Boston on June 18 at 3.15 P. M., and reached Young's Hotel at York Beach at 5.30 P. M. For the two days following a heavy northeast storm prevailed. As the hotel almost overhangs the water, the party greatly enjoyed watching the heavy surf beating upon the cliffs and the sand beach. On the second day it was decided to give up the main object of the trip, and the party returned to Boston by an early train. Many, however, expressed themselves as well repaid for coming by the spectacle of the storm.

The Field Meeting for 1906 was held at CRAWFORD HOUSE, N. H., from Saturday, June 30, to Monday, July 9, and was attended by 105 persons, the largest number present at a Field Meeting since 1898. The party was in charge of Messrs. Edward Little Rogers, Parker B. Field, and Arthur H. Tucker.

The details of the meeting are as follows: On Saturday evening an informal meeting, held in the parlor, was addressed by the President; the

Committee gave an outline of the proposed excursions. Sunday morning several enjoyed a walk to Bretton Woods hotels via Red Bench and the railroad track, returning by an old bicycle path, and, in the afternoon, a walk or drive to summit of Mt. Willard. In the evening an address on "Music in Nature" was given by Mr. Frank E. Morse, assisted by Mrs. Clark and the orchestra. Monday there was an all-day trip to Mt. Webster, returning via Mt. Jackson, and in the evening an address on "Forestry Conditions in the White Mountains" by Mr. Philip W. Ayres, Forester to the Society for the Protection of New Hampshire Forests, the guest of the Club. On Tuesday a visit to the Rosebrook Range occupied the day, this being the first party of the Club to reach the summit of Mt. Echo. Field addresses were given by Mr. Ayres on both Rosebrook and Echo. Wednesday it rained all day. The evening was devoted to social amusements. Mt. Washington was ascended on Thursday, some taking the Crawford Bridle Path and about a hundred the train. Half the party walked back to Crawford's by the Abenaki trail. Friday was assigned to the ascent of Mt. Carrigain by the usual route; Saturday to Mts. Willey, Field, and Avalon, and drives in the afternoon to Bemis and Jefferson, and Sunday to drives and walks morning and afternoon, with a service of song in the evening. On Monday the party returned to Boston.

The August Camp of 1906 was pitched at THE GLEN in Pinkham Notch. Preceding the coming of the main party on Friday, August 3, a dam had been built across the Peabody River to form a swimming pool, and a wire fence stretched around the camp ground. Thirty tents, besides the large marquee and commissary tents, had been set up. In the marquee, dining-tables and "deacon seats" were duly arranged, while the cook tent was furnished with a floor, tables, and shelves, with a woodshed in the rear. Two tall staffs were cut and erected on the hill above the camp, from which floated the stars and stripes and the A. M. C. Flag. The afternoon of Friday and Saturday forenoon were devoted to arranging camp outfits and making the tents comfortable and homelike. Saturday afternoon a walk was taken by way of the "cut-off" to Nineteen Mile Brook, returning by the stream. On Sunday parties went to Huntington's and Tuckerman's ravines and up the carriage road. The real work began Monday, when four parties (nearly the whole personnel of the camp) set out for as many objective points: Madison Hut, via the Osgood Trail; Tuckerman's Ravine, by the Raymond Path; Carter Notch; and the Great Gulf. The last named party followed the Osgood Trail to the West Branch and turned up that rocky stream, picking their way as best they could. They were to camp in the open, but in the afternoon dark clouds began to gather, presaging a storm, so a lean-to was built and firewood chopped, fortunately before it broke. This was the only rain of the trip, and was over before daybreak. Tuesday morning 3 of this party with the guide returned to camp, while 4 kept on up the Great Gulf to Spaulding's Lake. They climbed the head wall to the summit, where they had supper. The Tuckerman's Ravine and Madison

Hut party also reached the summit of Washington, whence all walked down the carriage road to camp. The Carter Notch party continued over the Carter Range to Imp Camp, returning on Wednesday night. Wednesday every one left in camp went on a picnic to Glen Ellis Falls. Thursday a second party went to Carter Notch for the night, while 17 followed the Raymond Path to Huntington's Ravine, climbed the head wall to the summit of Washington, and, after supper at the hotel, descended by the road in the evening. Friday 2 members went to Crawford's via the Summit and old bridle path; others to Madison Hut for the night, while three started up the West Branch, bound for the seldom visited Jefferson Ravine. The Carter Notch people continued their tramp to Imp. Saturday a party went to Tuckerman's Ravine for the night, and another up the Boulder Trail to Boott Spur, descending to Hermit Lake and back to camp; 15 took a ride to Gorham. The 3 in Jefferson Ravine climbed the head wall and went to the summit of Washington. Sunday 10 went to the Boott Spur Boulder and back, and 4 into the Great Gulf to camp. Those who camped Saturday night at Hermit Lake awoke to a threatening morning, but they started on their ascent to the Summit. After reaching the top of the head wall, they were enveloped in dense fog, and faced a cold, biting wind all the way up the cone. Soon after arriving at the Summit a change of wind cleared the air as if by magic, and they were rewarded with a rarely clear afternoon in which to walk down the road. Monday Madison Hut, Carter Notch, Adams Ravine, and Wild River were the objective points. Tuesday the Madison party went down to the Ravine House, and the Carter Notch people to Imp, while those from Wild River and the Great Gulf returned to camp. Wednesday the Boulder Trail, Tuckerman's Ravine, and the summit of Washington were visited, and the Carter party returned from Imp. Thursday preparations were made for breaking camp on the morrow, though several short trips were taken. On Friday, August 17, all drove through the Pinkham Notch to Glen station and returned to Boston.

The party, which numbered 56, was the largest that the Club has ever had under canvas. It was in charge of Mr. W. A. Brooks and J. Ritchie, Jr. Miss Hattie A. Kimball was the cook, and three high school boys from Wellesley Hills, Mass., and two from New York City acted as waiters under the supervision of William O. Hubbard. The guides were Vyron D. Lowe, George H. Howard, and Leon P. Lowe.

The Labor Day Excursion starting from Boston on Friday, August 31, was scheduled for South Baldface Mountain, with headquarters at "The Oxford," Fryeburg, Maine. While on the way, it was learned that the hotel had that day been burned down, and a change of base was made to "The Intervale," at INTERVALE, N. H. The party was in charge of Mr. and Mrs. E. L. Rogers. On Saturday morning the party drove over to Hurricane Mountain, past the ruins at Fryeburg, and to the old Indian battleground at Lovewell's Pond; in the afternoon a walk was taken to Saco River and Meadows. Sunday morning Mt. Kearsarge was climbed, and in the

afternoon there was a drive to Jackson. Monday morning was rainy, but in the afternoon Saco River, Diana's Baths, Cathedral Ledges, and Point Surprise were visited. The party returned to Boston on Tuesday, September 4.

The WALKING PARTY revisited the scenes of a number of earlier excursions of the Club. It assembled—6 in number—at the Pemigewassett House, Plymouth, N. H., on Tuesday, September 4. The walk for the first day was via Rumney village to Rumney Depot, and, in the afternoon, to the summit of Mt. Stinson, descending through the pastures to the west of the mountain and reaching Stinson Lake in time for supper. On Thursday the way lay by wood road to the Glen Ponds, and thence through the woods to the highway leading up to Breezy Point, the hotel not being reached till half-past one o'clock. In the afternoon the party walked to the summit of Moosilauke. On Friday they descended by the Benton Path to the new Landaff road, taking dinner at the Parker House, which is at the entrance to the path. This delightful trail seems to be less travelled than the others, although it is most beautiful. In the afternoon the road was taken to the Mount Jackson House in Franconia, which was the stopping-place for the night. Saturday the walk was up Copper Mine Brook, with a visit to Bridal Veil Falls and to the great slide coming into the brook from the Kinsman side, thence over the notch to Lake Moran (Silver Lake), descending thence to the road and the Flume House. For Sunday no trip was regularly planned. The party started at a late hour (about ten o'clock) for the summit of Liberty by the new Club path. The day proving better than anticipated, the walk was continued along the ridge to Lafayette and down to the Profile House. On Monday there was merely the walk down to North Woodstock. Early Tuesday morning, with Mr. Frank Clark of North Woodstock for guide, the party boarded the train at Lincolnville for an over-night trip through the Pemigewassett Wilderness. The train was left at the turn up the Franconia Branch, and the walk begun over the grading for the extension of the railway to the Forks. Lunch was eaten at the Forks, and in the afternoon the North Fork was followed,—a route that had been traversed by the camping-tramp of three years ago. Thanks to the new paths, progress was much quicker than before, so that the camp-ground of the earlier trip on the east bank just above the island was reached in three hours, as against five and one half on the previous trip. In the morning the walk was resumed past Thoreau Falls to Willey Pond, and thence to the railroad and the Crawford House. On Thursday the party ascended the Crawford Bridle Trail through the mists of the only unpleasant day of the trip, lunching at the emergency shelter and descending in the afternoon by the way of Boott Spur to the Glen House. On Friday a return was made up the head wall of Huntington Ravine to the Summit to dinner, and to the Crawford House in the afternoon. The party returned to Boston on Saturday, September 15. Mr. John Ritchie, Jr., was the leader.

For the Autumn Trip to the RANGELEY LAKES, some 80 members and friends left Boston by the Eastern Division of the Boston & Maine R. R.

at 10 A. M., arriving at Bemis, via Portland and Rumford Falls, about 7 P. M. Here they were transferred to the steamer Florence Barker for a six-mile sail to "The Birches." This hotel is situated on Student Island in Lake Mooseluckmaguntic, and consists of a head-house, which contains office, dining-room, and kitchen, with long rows of log cabins flanking it. The week was spent as follows: Saturday in getting rested and seeing the island; Sunday in a trip to Bald Mountain back of Barker's camp, some six miles up the lake, and a stroll over the island in the afternoon; Monday there were two all-day parties, one to Aziscohos and the other to Observatory, both slightly summits; Tuesday all took part in a trip to Upper and Lower Richardson Lakes to the South Arm and the Anglers' Retreat; Wednesday there was a canoe and boat trip to Cupsupsic Lake, River, and Falls, and back to Billy Soule's Camp, our steamer picking the party up there and taking them home to the island; Thursday all went to the town of Rangeley by the way of Haines's Landing and the Rangeley Lake steamer; Friday was Kennebago Lake day, involving a tramp of twenty-two miles up to the lake and return; for the great part of the way the road followed the Kennebago River; Saturday, at 1.20, the party left for home from Bemis, reaching Boston at 9.05 P. M. A party of 7 prolonged their stay and went, via Rangeley and Stratton, to Jones's Camps at the foot of Mt. Bigelow. The next day they made the second summit or "The Horns," and returned to Boston on Monday. The trip was in charge of Messrs. G. D. Newcomb and C. P. Casson.

An October Excursion was made to the METROPOLITAN WATER BASINS and MT. WACHUSETT with Mr. Parker B. Field in charge.

Saturday morning, the 6th, 51 persons took car at Park Square, and 12 others joined the party at various points between Framingham and the summit of Wachusett, making 63 persons in all. The water system was closely followed from Framingham to its source, by trolley and train, the party alighting to walk to the Sudbury Dam in Southboro and to visit the filter-beds in Marlboro. From the time of arrival at Clinton a drizzle set in, and under these conditions the great Wachusett Dam and North Dike were visited. Arriving at Jefferson by train, in a heavy downpour, coaches were taken to Princeton. While enjoying an excellent late dinner at the Wachusett House, the weather cleared, and it became very cold, with a high wind, which continued all night. Sunday was a perfect fall day, quite cold and absolutely clear, and all the party were in excellent spirits and eager for climbing. Walking to the summit of Wachusett, reached at 11.45, they remained until 2.15. Box lunches had been provided by the Wachusett House, and hot coffee was served by the Summit House. Walking down the mountain by the old Indian trail, nearly an hour was spent on the shore of Wachusett Lake, when trolley was taken to Fitchburg, and Boston was reached at 8 P. M.

The Christmas Holidays Excursion took out 80 persons from Boston at 8.30 P. M. Wednesday, December 26, in three special sleepers, bound for QUEBEC via the Boston & Maine and Quebec Central railroads. Seven addi-

EXCURSIONS.

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May 30 (<i>all day</i>).	The Carlisle Pines.	9	E. L. Rogers.	55
June 2 (<i>afternoon and evening</i>).	Cohasset, Mohawk Valley, Sandy Cove, and White Head.	3	G. D. Newcomb.	135
9.	Highland, Mt. Bellevue and Stony Brook Reservation.	4	G. D. Newcomb.	46
16.	Lynn, Lantern Rock and Oven Cliff.	3	G. D. Newcomb.	25
18 (<i>all day</i>).	Baker's Island.		G. D. Newcomb.	Storm
July 21 (<i>all day</i>).	Rhododendron Reservation.		E. L. Rogers.	7
Sept. 8.	Riverview, Norumbega Tower, Weston Gate House.	4	E. G. Chamberlain.	42
15.	Readville, Fairbank's Cave, and Robert's Mill.	4	H. A. Jenks.	72
22.	Wellesley, Pond Road and Charles River Banks.	5	W. A. Brooks.	Storm
29 (<i>afternoon and evening</i>).	Way-side Inn and Nobscot Mountain.	8	S. C. Rogers.	143
Oct. 6 (<i>all day</i>).	Great Blue Hill. A. M.		E. L. Rogers.	3
	Great Blue Hill. P. M.		W. A. Brooks.	20
13.	Dedham, High Rock and Satan's Kingdom.	4	E. Moffette.	70
20.	Wakefield, Castle Rock and Hart's Hill.	4	H. A. Perkins.	34
27.	Needham, West side of Charles River to Upper Falls.	3	C. A. Newhall.	60
Nov. 3.	Greenwood, Greenwood Grove and Crystal Lake.	3	C. P. Casson.	60
6 (<i>all day</i>).	Concord, Haunts of Thoreau.	6½	E. L. Rogers.	78
10.	Middlesex Fells, Black Rock, Cairn, and Nanepashemet Hills.	5	E. L. Homer.	51
17.	Chestnut Hill, Hammond's Pond.	3	G. D. Newcomb.	85
24.	Lynnfield, Serpentine Mound, Robin Rock, Nell's Pond, Wolf Pits.	4	A. R. Bailey.	103
Dec. 1.	Wellesley, Pond Road, Lake Waban, College Grounds.	3	W. A. Brooks.	46
8.	Stony Brook, Snake Hill, Devil's Den, Doublet Hill.	4	E. G. Chamberlain.	11
15.	Wellesley Hills, The Hundred's Woods, Mt. Pennell.	4	W. A. Brooks.	Storm

Dec. 22.	Riverview, Eastern Banks of Charles River.	4	E. G. Chamberlain.	11
29.	Forest Hills, The Arboretum.	3	Miss K. H. Andrews.	17

Proceedings of the Club.

June 6, 1906. — Two hundred and fifty-sixth Corporate Meeting, held in Room 22 Walker Building.

President Chamberlain in the chair.

The audience numbered one hundred and twenty-five.

Mr. Harvey N. Shepard, Chairman of the Trustees of Real Estate, announced that a tract of pine forest, — 150 acres, — in the State of Maine, together with a fund for its maintenance, would soon be presented to the Club; also, that the Madison Spring Hut would be enlarged in September.

The subject of "Camping Tramps in the Mountains and Road Walking Trips and Outfits" was then introduced by the President. He referred to the equipment exhibition lately held, to the "Guide to Paths and Camps in the White Mountains" now in preparation, and to the general work of the Club in the mountains. He then introduced Mr. Edmund A. Whitman, who spoke of the difference between the members of the Sierra and Appalachian Clubs, and urged that a larger proportion of our Club's income be spent on its mountain work. He strongly advocated encouraging the outdoor life.

Mr. John Ritchie, Jr., alluded to American independence as manifested in the diet and clothing of Club members who tramp in the woods and climb mountains. He advised a novice to take all he thinks he would like, see what others use, and thus by experience ascertain what is best suited for his individual needs.

Mr. Irving D. Howe, a consumer as well as manufacturer of boots, spoke at length concerning the treatment of the foot. He recommended a boot similar to the old army brogan, and exhibited as an illustration an article with a single very flexible sole.

President Chamberlain exhibited knapsacks such as he and his wife used in England for a week's tramp. Questions were asked and remarks made by various other persons.

June 30—July 9. — Forty-first Field Meeting, held at the Crawford House, White Mountains, N. H.

On Monday evening, July 2, the principal indoor session of the week was held, the guest and speaker of the occasion being Mr. Philip W. Ayres, Forester of the Society for the Protection of the New Hampshire Forests.

Mr. Ayres spoke of the present forest condition of the mountains, of the

value of these forests to the country at large as a source of timber supply, and of their great importance to all the New England States on account of the valuable water powers that head in these mountain forests. He showed the danger threatening these interests if the forests continued to be logged with a view to present profits only, and the terrible menace to the remaining forests which the fire-inviting slash of the logged woods presented. Considerable stress was laid on the effect of past forest fires on the timber-producing power of the mountains. It was stated that in spite of all the cutting of the past two generations, and in spite of the terrible fires (the worst of which, that of 1903, destroyed the timber on about ten per cent. of the total area of the White Mountain region), there at present remain 4,700,000,000 board feet of virgin timber, or enough to last twenty years at the present rate of cutting.

The establishment of a Government reserve would not necessarily mean that all lumbering would cease in these mountains. The bill now before Congress provides that the timber shall be utilized where, when, and in such manner as the Government foresters determine will not be inimical to the interest of the community. As a reserve, the danger of fire would be greatly reduced through the establishment of an effective patrol. Under the reserve administration the forests would be made perpetually productive, and the lives of the springs and streams would be adequately protected.

On the following day Mr. Ayres accompanied the Club's party on an all-day walk over the Rosebrook Range, the party being guided by Mr. John Anderson of Bretton Woods, representing the owners of the forest through which the trails led. On the summit of Mt. Rosebrook a halt was made and an informal outdoor meeting was held, at which Mr. Ayres pointed out, from the object-lessons there visible, the need of creating a forest reserve in the mountains. From this point could be plainly seen many evidences of the destructiveness of fire on the top of Mt. Rosebrook itself, the very soil having been eaten out in places to a depth of over two feet. He also took occasion to call attention to the condition of Mt. Hale, which loomed across the Zealand Valley to the west, a mountain named some years ago in honor of Rev. Edward Everett Hale, who was President of the Club in 1895. In eloquent words Mr. Ayres urged that this mountain and its forests should be forever set aside as a fitting monument to this much-revered man, who, probably more than any other, is responsible for the favorable action thus far taken on the bill before Congress.

On Friday, July 6, a large party climbed Mt. Carrigain from Livermore, and at noon on Signal Ridge another informal open-air meeting was convened to listen to the reading, by Mr. Frank H. Burt, of some interesting old letters by Mr. S. Hastings Grant of Elizabeth, N. J., who, in company with Professor Guyot, made what was probably the first ascent of this mountain on August 27, 1857. (See p. 229.)

October 9, 1906. — Two hundred and fifty-seventh Corporate Meeting, held in Room 22 Walker Building.

Vice-President Whipple in the chair.

In spite of stormy weather, over one hundred persons were present.

Harland A. Perkins was elected Secretary *pro tem*.

The Chair announced the following committee on nomination of officers for the Club for the year 1907; Professor George H. Barton, Chairman, Mr. Fred H. Tucker, Miss Anna E. Lanning, Mrs. Frederic V. Fuller, and Mr. John Robson.

Chairman Harvey N. Shepard of the Trustees of Real Estate presented their Report. (See p. 269.)

The address of the evening was given by Rev. E. A. Thomas, who spoke on "The Connecticut River Valley." He traced the course of the river from its source to its junction with the Sound, illustrating its natural beauties with over one hundred lantern slides, and also told quite a little of the history of the hamlets on its banks.

November 6, 1906. — Special Meeting, held in Room 22 Walker Building.

President Chamberlain in the chair.

The audience numbered about two hundred.

In opening the meeting the President called attention to the work of the American Civic Association for the protection of Niagara Falls, and requested those present to write to the Secretary of War remonstrating against the admission of electric power from Canada.

An illustrated lecture on "Inland Water Birds" was given by Mr. William L. Finley of Portland, Oregon, one of the Directors of the National Association of Audubon Societies for the Protection of Wild Birds and Animals.

The speaker has made a special study of the life history of water birds in the region of Southern Oregon and Northern California, and especially about Klamath and Tulle lakes. At the cost of much time, and with great patience and perseverance, he has succeeded in learning their habits. He emphasized the fact that not the individual hunter, but the market, was the great enemy of the birds. The telephoto lens enabled him to secure many successful photographs, and the interesting lecture was profusely illustrated with beautiful and instructive pictures.

November 13, 1906. — Two hundred and fifty-eighth Corporate Meeting, held in Room 22 Walker Building.

Vice-President Whipple in the chair.

There were eighty-one persons present.

The following amendment to the By-Laws, recommended by the Council, was passed unanimously: Amend Article X. by substituting for the words

“at the November meeting” the following : “at or before the January meeting,” so that the article shall read : —

“The five Councillors shall be chosen to represent, severally, the departments of Natural History, Topography, Art, Exploration and Forestry, and Improvements. It shall be their duty to offer to the Council each spring a plan for the summer's work, and at or before the January meeting to report to the Club the work accomplished in their respective departments during the preceding summer. The Councillors are authorized, when they think it expedient, to call special meetings of those interested in their respective subjects, at which they shall act as Chairman.”

Ex-President Alexis H. French offered the following :—

“Voted : That an auditing committee of three members be appointed annually by the President at the November meeting of the corporation, said committee to undertake the audit of the accounts of the following-named officers and committees: the Treasurer, the Trustees of the Permanent and Reserve Funds, the Trustees of Real Estate, the Committee on Field Meetings and Excursions, and the Snow-shoe Committee, and to return a written report upon same at the annual meeting next succeeding said appointment.”

After some explanation, the vote was passed.

Mr. Richard A. Hale presented his report as Councillor of Topography. (See p. 276.)

Professor William H. Pickering spoke briefly concerning his identification from Mt. Ktaadn last summer of the most distant point visible from Mt. Washington, first studied by him in 1879. (See p. 249.)

Mr. Frank H. Burt, publisher of “Among the Clouds,” stated that he had often looked for this peak, reported by Professor Pickering in 1879, but was not successful until one clear day in the summer of 1905. He added that the mountain called Katahdin by Starr King is Bald Mountain, near Parlin Pond. He also stated that John Anderson had named the notch between Cherry and Deception, Pondicherry Notch, after the French explorer.

Mr. J. H. Emerton presented his report as Councillor of Natural History, including an account of collections and observations at Three Mile Island and in the White Mountains during the Club's meetings at Crawford Notch and the Glen. (See p. 274.)

December 4, 1906. — Two hundred and fifty-ninth Corporate Meeting, held in Room 22 Walker Building.

President Chamberlain in the chair.

The attendance was one hundred and forty-five.

Second and final action was taken upon the amendment to the By-Laws passed at the November meeting, the vote being unanimous in favor of adoption.

The Secretary read a communication from Mr. H. K. Barrows of the United States Geological Survey, stating that during the past summer his assistants had computed the elevation of Mt. Ktaadn at 5268 feet. Credit

for this should be given to Professor H. S. Boardman, as chief of party of the Survey, and especially to Mr. T. McC. Gunn, Instructor in Mechanical Engineering at the University of Maine.

Mr. Harland A. Perkins presented his report as Councillor of Improvements (see p. 289), illustrating with lantern views the Club camps, paths, etc. The report, which was prepared in detail, was enlivened by accounts of four trips taken by the Councillor with companions.

Mr. Harlan P. Kelsey presented his report as Councillor of Exploration and Forestry. (See p. 283.)

December 11, 1906. — Special Meeting, held in Room 22 Walker Building.

Vice-President Whipple in the chair.

One hundred and sixty-five persons were present.

Mr. Robert Walcott gave an account of the "First Ascent of Mt. Mummery in the Canadian Rockies." The speaker described the trip of sixteen days in the company of three friends and with Christian Kaufmann as guide. A large number of interesting lantern views were shown, those worthy of special mention being Mts. Habel and Collie, the view of Mummery from Baker Pass, a very fine ice-fall on the slopes of Mummery, a wind-blown cornice, and a narrow rock ridge on the very summit of the mountain. (See p. 221.)

Mr. Rest F. Curtis gave an account of his visit at the camp of the Canadian Alpine Club at Yoho Pass last summer, and of his trip into the valley of Cataract Brook.

Professor Charles E. Fay showed a large number of lantern views illustrating trips taken by him with Mr. Curtis, — views about the Yoho Valley and the region of Lakes Linda, O'Hara, and McArthur.

December 19, 1906. — Special Meeting, held in Huntington Hall.

President Chamberlain in the chair.

The attendance numbered three hundred and forty-five.

The President appointed the following committee to arrange for the Annual Reception: Mr. Frank E. Morse, Chairman, Miss Martha A. Knowles, Mr. Clifford M. Swan, Miss Alice L. Jose, Mr. W. B. Mossman, and the Councillor of Art for 1907.

An invitation from the Sierra Club for members of the Appalachian Mountain Club to participate in the next summer's excursion to the Sierra Nevada Mountains was announced.

The committees having charge of the Field Meetings and Excursions previous to September 1st, the Snow-shoe trips, and the Club camp at Three Mile Island presented reports, which were illustrated by the lantern. The subjects and speakers were as follows: The Winter Excursions, by W. R. Davis; Memorial Day Excursion to Stinson Lake, by Edward Moffette; Trolley Trip to York Beach, by P. B. Field; Field Meetings at Crawford's,

by E. L. Rogers ; Three Mile Island, by R. B. Lawrence ; the August Camp at Glen, by W. A. Brooks.

January 9, 1907. — Two hundred and sixtieth Corporate (Annual) Meeting, held in the Lecture Hall of the Boston Society of Natural History.

President Chamberlain in the chair.

The attendance was eighty-six.

Professor George H. Barton, the Chairman of the Committee to Nominate Officers for 1907, finding it necessary to leave the meeting at an early hour, was called upon to present the Committee's report. It was voted that the report be received and laid upon the table.

The report of the Councillor of Art, Miss Martha A. Vinal, was read and accepted. (See p. 281.)

The annual reports of the Recording and Corresponding Secretaries, Treasurer, Trustees of Permanent and Reserve Funds, and Trustees of Real Estate were presented, and it was voted that they be accepted and placed on file. (See pp. 264-268.)

A vote of thanks to Mr. R. B. Lawrence and Miss M. A. Knowles for arduous and successful labors in behalf of the camp at Three Mile Island was adopted.

The reports of the Treasurer and of the Trustees of Real Estate were discussed by several members.

The report of the Auditors was presented, stating that they had examined the accounts of the Treasurer, the Trustees of the Permanent and Reserve Funds, the Trustees of Real Estate, the Committee on Field Meetings and Excursions, and the Snow-shoe Committee. (See p. 269.)

It was then voted to take from the table the report of the Committee on Nominations, and to proceed to ballot. Upon ballot being taken, the following candidates were unanimously elected, seventy ballots being cast : —

President, Parker B. Field; Vice-President, William A. Brooks; Recording Secretary, Rosewell B. Lawrence; Corresponding Secretary, Mrs. Otto B. Cole; Treasurer, Rufus A. Bullock; Councillors: Natural History, James H. Emerton; Topography, Richard A. Hale; Art, Cora Stanwood Cobb; Exploration and Forestry, Allen Chamberlain; Improvements, Harland A. Perkins; Trustee Permanent and Reserve Funds (for three years), Rest F. Curtis; Trustee of Real Estate (for four years) Edward F. Stevens.

President Chamberlain appointed Mr. Gardner M. Jones a committee to escort the President-elect to the chair, and in a few brief words President Field accepted the office.

Wednesday, January 16, 1907. — Special Meeting, held in Huntington Hall.

President Field in the chair.

The audience numbered two hundred and ninety.

By request of the President the lecturer, ex-President Harvey N. Shepard,

prefaced his address with a few remarks about Jamaica and Kingston, the city destroyed by earthquake and fire on the 14th inst.

The subject of the evening's lecture was "Norway and the North Cape."

The speaker's route in Norway took him from Bergen to the Sorfjord and Eidfjord, upper portions of the Hardangerfjord. He then visited Molde and Thronthjem, whence he sailed on the voyage north to the Lofoten Islands, Hammerfest, and the North Cape. Upon his return south he travelled from Stavanger to Christiania, and thence recrossed the country via the Baegna route, Borgund and Laerdalsoren, the Naerofjord and Naerodal, to Bergen. The lecture was profusely illustrated with the lantern. In addition to the waterfalls and fjords, the most striking views were those of the Jordalsnut, Torghaetta, the North Cape, and the Midnight Sun.

January 23, 1907. — Special Meeting, held in Huntington Hall.

President Field in the chair.

The audience numbered one hundred and eighty.

Mr. A. Lawrence Rotch gave an illustrated lecture, entitled, "An Autumn Passage of the Col du Géant." (See p. 211.)

The President, in introducing the lecturer, referred to his valuable work in meteorology and to his scientific reputation in Europe.

The lantern views, many of them made from the Sella Collection, finely illustrated the scenery of peak and glacier; the view of Mont Blanc from the Aiguille du Dra by W. F. Donkin was particularly effective.

At the close of the lecture Mr. Ritchie called attention to the speaker's description of the effect of moonlight upon the glaciers and of the alpine after-glow, and alluded to similar experiences of his own.

January 30, 1907. — Special Meeting, held in Huntington Hall.

President Field in the chair.

There were about three hundred and fifty persons present.

Dr. Frederick A. Cook of Brooklyn addressed the Club on the ascent of Mt. McKinley.

Dr. Cook stated that the expedition appealed to him less as a mountain-climbing "stunt" than as a chance for exploration, as the mountain was far from the coast, remote from the usual lines of travel, and much of the country about it unmapped. The other members of the party were Professor H. C. Parker of Columbia University, Mr. R. W. Porter, an expert topographer, and Mr. B. H. Browne of Tacoma. They left Seattle May 17 and sailed to Sitka, thence across the Bay of Alaska and Prince William Sound to Seldovia and up Cook Inlet to Tyoonok, which they reached June 3. This is about two hundred miles south of Mt. McKinley. Here the pack-train was started overland to meet the explorers at the head of navigation on the Yentna River, up which they proceeded in a 40-foot, 25 horse power gasoline launch. They hoped to discover a pass on the northwest of the mountain by which they might gain the northerly side, but after many difficulties,

this was found impracticable, and retracing their steps, they reached their base camp, the "Parker House," July 2. They next traversed the unexplored region between the Yentna and Chulitna rivers, in order to attack the mountain from the south, but the ascent on this side was found impossible owing to precipitous cliffs and broken ridges, and on July 25 the party, with the exception of Mr. Porter, who remained behind with one man to make a map of the region, started back to Tyoonok. They reached it August 3d, and on the 8th Professor Parker started homeward. Dr. Cook, with two men, then ascended the Sushitna River in the launch as far as practicable, and establishing a base camp, set out toward the southeast ridge of the mountain. A broad, smooth glacier of easy grade, leading in the desired direction, was soon discovered, up which they made rapid progress. One of the men turned back on the third day, but Dr. Cook stated that on September 16, eight days and nights from their camp, four on the glacier and four on the slopes of the mountain itself, he and his companion, a man named Barrill, reached the top, 20,361 feet above the sea. The temperature was -16°F . The weather was clear and the view most extensive, the Pacific, two hundred miles away, being distinctly seen. After reading their aneroids and depositing a record of the climb in a bottle, they made their best speed down to their camp, reaching it in four days. Dr. Cook showed about one hundred lantern slides, many of them beautifully colored.

February 6, 1907. — Two hundred and sixty-first Corporate Meeting, held in Huntington Hall.

President Field in the chair.

Three hundred and twenty-five persons were present.

The Committee having charge of the excursions during the latter part of the year 1906 presented reports illustrated by the lantern. The subjects and speakers were as follows: The Labor Day Excursion to Intervale and the Saturday Outings, by Mr. E. L. Rogers. Mr. Rogers also gave a short account of the trip to the Pisgah Forest in December, 1905. The September Walking Party, by Mr. J. Ritchie, Jr.; the Autumn Excursion to the Rangeley Lakes, by Mr. G. D. Newcomb; and the Christmas Holidays Excursion to Quebec, by Mr. A. H. Tucker.

An account in verse of the trip to the Metropolitan Water Basins and Mount Wachusett, prepared by Miss Clapp, was read by Mr. Rogers.

February 20, 1907. — Special (Informal) Meeting, held at the Club Rooms.

Mr. Will G. Steele of Portland, Oregon, gave an illustrated talk entitled "In the Land of Mazama." The speaker began with an allusion to the spirit of the mountains, which inspired all those who loved to climb the heights. He described the organization of the Mazamas in 1894 upon the summit of Mt. Jefferson, and the various trips taken in subsequent years. The larger part of the talk was devoted to the trip to Mt. Rainier in the summer of 1905, participated in by the Mazamas and the Sierra and Appalachian Moun-

tain Clubs. Many fine views were shown of the great mountain and its magnificent glaciers, including pictures of the parties at various points. The speaker closed with a description of Crater Lake and the reservation set apart there by the Government, through the influence of the Mazamas.

About fifty persons were present, in response to a notice hastily sent out on learning that Mr. Steele was making a brief stay in Boston.

March 6, 1907. — Special Meeting, held in Huntington Hall.

President Field in the chair.

About five hundred persons were present.

Mr. W. W. Hart was chosen Secretary *pro tem*.

Mr. George Wharton James spoke on the "Mysterious Salton Sea," situated in the Colorado desert of Southern California. The locality, which lies below sea-level, was once part of the Gulf of California, but it was gradually cut off and partly filled in by sand and silt brought down through the Grand Canyon by the rapid current of the Colorado River.

The speaker said that it was estimated that the river at one time poured into this region 120,000,000 tons of silt annually, and thus the region has become under irrigation one of the most fertile in the world, producing eight crops each year of alfalfa, and other products in proportion. Among the native products of the desert the speaker referred to the cactus, which has been developed without thorns or spikes by Luther Burbank, and which is now used as provender for stock. The cause of the recent change in the course of the Colorado River was an artificial cut thirty-five feet wide and five feet deep made in dry seasons when the river was too low to flow through the irrigation canal. In the floods that followed, this cut was eroded out one mile wide, and through this the entire river flowed into the low-lying country and formed the Salton Sea. The cut, after many ineffectual efforts, has been repaired, and the river is now flowing in its natural course. The speaker estimated that it will require about five years for the water which poured through the cut to evaporate and for normal conditions to be restored.

March 13, 1907. — Two hundred and sixty-second Corporate Meeting, held in Huntington Hall.

President Field in the chair.

More than twelve hundred persons were present.

In the absence of the Recording Secretary, Mr. Allen Chamberlain was chosen secretary *pro tem*.

The President announced that the Club would be represented by an exhibit at the so-called "Sportsmen's Show," to be held in Mechanics' Building, March 30 to April 13, and at his request the Councillor of Exploration and Forestry, to whom this matter had been delegated by the Council, briefly outlined the plans for the exhibit.

Professor Charles E. Fay, the speaker of the evening, was then introduced, his subject being "The Contributions of Alpine Photography to our Knowledge of the Earth's Surface." The subject was illustrated by more than one hundred lantern slides. These slides were personally made by Signor Vittorio Sella from his celebrated collection of alpine photographs. Many of them were exquisitely colored by a special chemical process.

The speaker opened his subject with a brief narrative of the growth of illustration in the presentation of the stories of exploration, particularly that of great mountains, noting the transition, in the early 80's, from woodcuts to process pictures made directly from photographs. It was a matter of interest that APPALACHIA was among the first of alpine periodicals to employ the new method, as early as 1884. The notable part taken in this work by Signor Sella was especially set forth, both in connection with intensive exploration in districts already much visited and in hitherto unknown regions.

In illustration of the first kind, a group of pictures taken in the Alps was presented. This was followed by a series taken on the Duke of the Abruzzi's expedition of 1897 to Mt. St. Elias in Alaska. The progress of alpine exploration in the Caucasus, especially in the 80's, was then briefly rehearsed, and illustrated with many superb views. The culmination of mountain grandeur was reached in the final series, from thirty-five views taken in the Himalayas in 1899, during a tour of Kangchanjunga.

April 17, 1907. — Two hundred and sixty-third Corporate Meeting,
held in Huntington Hall.

President Field in the chair.

The attendance was two hundred and thirty.

With appropriate remarks the President referred to the recent decease of Francis W. Newhall and Walter R. Davis. George N. Whipple, Chairman of a committee appointed by the Snow-shoe Section, offered the following resolutions : —

Resolved, That in the death of Walter R. Davis, from 1890 to 1903 the Secretary of its Executive Committee, and since that date its Chairman, the Snow-shoe Section of the Appalachian Mountain Club has met with its greatest possible loss.

In his devotion to our interests he did not spare himself ; but, doing with his might what his hand found to do, he added in generous measure to the sum of human happiness.

Energetic, outspoken and faithful, loyal to his many friends as they were to him, he will be sorely missed and long remembered.

GEORGE N. WHIPPLE.
EPHRAIM HARRINGTON.
HELEN E. ENDICOTT.

It was voted to adopt the resolutions.

The lecture of the evening was given by Dr. William Lord Smith, upon

"Tiger Hunting in Korea, China, and Java." The speaker first called attention to the connection between tigers and mountains, and showed upon the map the countries in which he hunted. In Korea the tigers are found upon the inland forest-covered ridges and in close proximity to the inhabited valleys. In the provinces of Amoy, southeastern China, they are hunted in caves among great boulders. In Java their home is in the dense jungle, from which they frequently come into the valleys. The differences in tigers and the methods of hunting and the customs and costumes of the various people in the lands visited by Dr. Lord were described, and a large number of fine illustrations were thrown upon the screen. Some views of the Papuan natives of New Guinea were also exhibited. A few slides of a purely ethnological nature were also introduced.

April 24, 1907. — Special Meeting, held in Huntington Hall.

President Field in the chair.

About five hundred persons were present.

Mr. J. Ritchie, Jr., was chosen Secretary *pro tem*.

Mr. Ellsworth Huntington told the story of his recent explorations in Chinese Turkestan. In a lecture given before the Club in 1907, the lecturer had spoken of an earlier exploration in Russian Turkestan. Since that time, as the assistant and companion of R. L. Barrett of Chicago, he had entered the same region through Hindustan and Kashmir, crossing the ranges of the Himalayas to about the place where the previous party turned north. Proceeding easterly from this, the party covered about a thousand miles to Lop-Nor, the Chinese salt lake, whence Barrett continued east through China, while the lecturer turned north for one hundred and fifty miles across the bed of the lake, and thence westerly and out through Siberia and Russia. To the alpinist the lecture was interesting by reason of the lofty passes traversed. The splendid scenery of this mountain region was well shown by the lantern views. The student of geology and geography found interest in the story of the investigation of a country in which the climate has changed in historic times, with consequent drying up of the soil and loss of population. North of the mountains is a belt of country watered by north-flowing rivers. These speedily lose themselves in the sand. Far out in the desert, sixty to one hundred miles beyond their present termini, there are the remains of cities dating back to the early centuries of the Christian era, which are now deserted on account of the lack of water. The climate is so dry that wooden ruins of the old towns have persisted through ten or fifteen centuries with hardly the signs of decay. The exploration of Lop-Nor was an interesting episode in the lecture. This ancient lake was known to the Chinese for centuries as a large body of salt water. To-day it is a marsh filled with reeds growing from a bed of rock salt, over which Mr. Huntington journeyed for two hundred miles. It was wintry weather, the thermometer sinking to from ten to fifteen degrees below zero. In this place he suffered the temporary loss of his camels, — a serious problem to confront a young explorer, — but the head guide, by a forced night run of

twenty-five miles, captured the stray animals, and led them back. To the historian the paper was of interest, since it broached Mr. Huntington's hypothesis, that the desiccation of these populous plains had greatly influenced the history of Europe. He finds that the barbaric invasions were coeval with the times of dryness, and the tribes of the interior displacing their neighbors formed a wave which resulted in the fall of Rome, the invasion of Spain, and other fateful events of European history.

May 8, 1907. — Two hundred and sixty-fourth Corporate Meeting, held in Huntington Hall.

President Field in the chair.

There were present about eight hundred persons.

The reading of the records was postponed.

Upon the motion of Professor Charles E. Fay, it was voted that a committee be appointed to prepare a minute for the records upon the decease of Charles E. Lowe, the well-known guide of Randolph, N. H. The President appointed Professor Fay Chairman, and Messrs. William Gray Nowell and J. Rayner Edmands.

The minute prepared by the Committee was as follows: —

"The intelligence of the death of Charles E. Lowe of Randolph, N. H., has been received with feelings of deep regret by the members of the Appalachian Mountain Club, and especially by those whose recollections go back to the early days of the Club's history, when Mr. Lowe's active interest and coöperation in the work of the new society were so effectual.

"Trained as land-surveyor in a timbered region, he was a 'pathfinder' before our modern ways were opened. Endowed with a rare love of the mountain and a spirit as strong as his vigorous body, he bore a leading part in the laying out and construction of the earlier paths to the northward of Mt. Washington and on the Carter Range. Possessed of a genial temperament and an appreciative and companionable nature, he seemed never happier than when acting as a trusted guide to those whom similar tastes had attracted to the grand heights.

"As his name passes from the Club's roll, where it first appeared in 1879 and among our life members since 1894, we place upon record this testimonial to a noble New England yeoman and a helpful and appreciative lover of Nature."

The lecturer of the evening was our fellow-member, Mr. Herbert W. Gleason, and the subject "Volcanic Peaks of the Cascades." In opening his remarks Mr. Gleason exhibited a Good River apple as an illustration of the extraordinary fertility of the volcanic region of Oregon and Washington. He pointed out upon the map the position of the Cascade Range and the volcanic cones, and gave in brief the geologic history of the region. The first picture thrown upon the screen was a striking view of Mt. Shasta, taken in the late autumn with snow in the valley. Then followed views of Mt. Mazama, Crater Lake, Jefferson, St. Helens, Adams, and Hood. A few photographs taken by Mr. E. W. Harnden, illustrating the trip of the party of 1905 from Portland to Mt. Hood, were shown.

The lecturer then described in detail the excursion made in that summer to Mt. Rainier by members of the Mazama, Sierra, and Appalachian Clubs,

showing views not only of the great mountain itself, but of Paradise Park, the Tatoosh peaks, the Nesqually, Cowlitz, and other glaciers, the various camps, and the climbing party upon the mountain. Pictures of flowers beautifully colored were also shown, — the anemone, avalanche lily, spirea, phlox, rhododendron, and others, — and several views of birds and wild goats. Then followed an exceedingly interesting account of the trip last summer to Mt. Baker, made by a Mazama party of seventy-five, who camped for three weeks at an elevation of 5000 feet. Several unsuccessful attempts were made to reach the summit, and finally two men succeeded, spending a night on the top, and being without food thirty-six hours. Fine views of the peak and its various glaciers were shown, and pictures of birds and flowers.

The lecturer closed by showing a series of colored panoramic slides, giving bird's-eye views of the Canadian Rockies and Selkirks. Many of these photographs were taken by Mr. Arthur O. Wheeler, of the Canadian Geological Survey.

May 15, 1907. — Special Meeting, held in Room 22 Walker Building.

Vice-President Brooks in the chair.

One hundred and forty persons were present.

Mr. Russell S. Codman gave an illustrated lecture, entitled "The Alps of Dauphiné."

The region lies southwest of Mont Blanc, and is little visited by tourists. Entering it from Grenoble, in the Department of Isère, the speaker crossed the range from north to south, to Briançon near the Italian boundary, and then recrossed to the north. He passed over La Meije, the dominating peak, a very difficult climb. Its elevation is 3,987 metres, and it was first ascended in 1877. Striking views of its splendid peaks were shown. The interest of the paper was enhanced by the pictures of quaint old chateaux, and also fine bridges by which engineering difficulties were overcome in road-building.

The subject of equipment for the trips of the coming season was discussed. Mr. Allen Chamberlain, the Councillor of Exploration, mentioned besides the four essentials, — the best map, a compass with a moving dial, a box of good matches, and a jack-knife, — outfit books and the Club pamphlets. He illustrated some of the many uses of the bandana. (See p. 288.) Mr. H. A. Perkins, Councillor of Improvements, described the new guide-book which the Club now has in press, and announced plans for the August Camp near Mt. Carrigain. Mr. J. H. Emerton, Councillor of Natural History, exhibited paraphernalia for collecting plants and insects.

June 12, 1907. — Two hundred and sixty-fifth Corporate Meeting, held in Room 22 Walker Building.

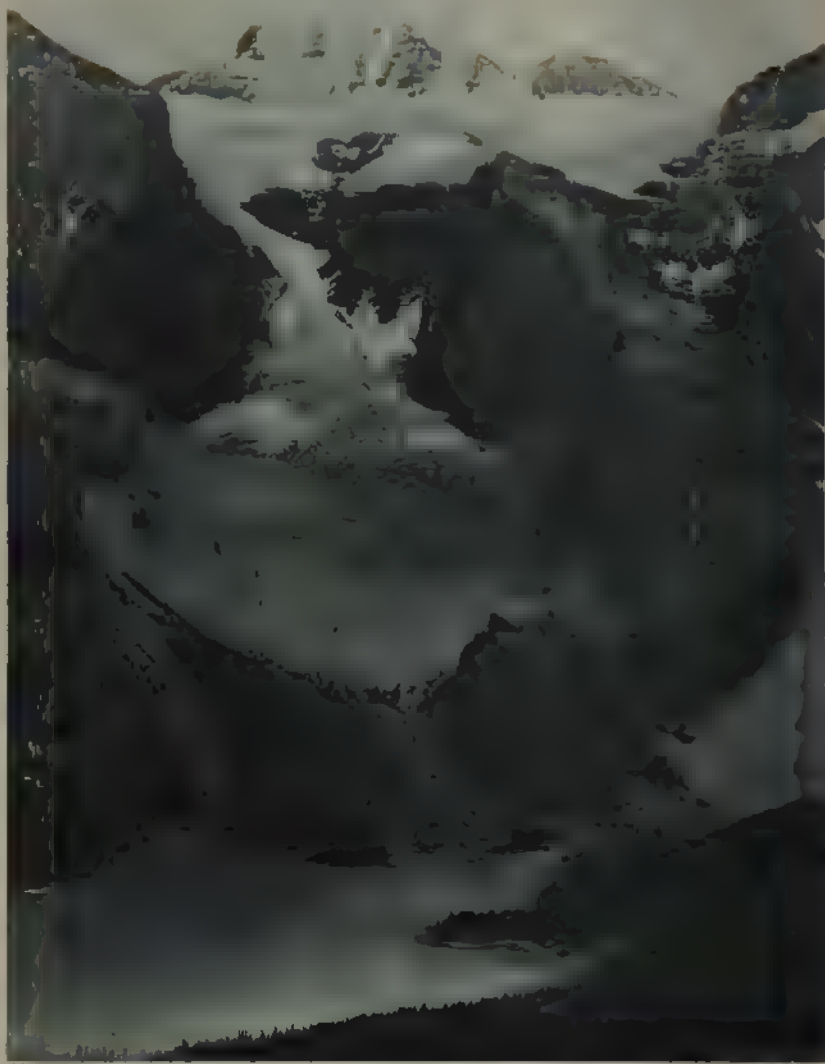
Ex-President Harvey N. Shepard in the chair.

One hundred and ninety-five persons were present.

Professor Leslie Alexander Lee, of Bowdoin College, gave an illustrated lecture, entitled "From Kineo to Ktaadn."

Professor Lee, the State Geologist of Maine, took this trip in August, 1906, in the company of Mr. H. K. Barrows, Hydrographer of the U. S. Geological Survey.

The speaker gave an interesting account of his canoe trip from the north-east carry down the West Branch of the Penobscot, often alluding to the experiences of Thoreau, who visited the same region in 1846, 1853, and 1857. The party ascended Ktaadn by the Aboljackmegassic Trail and the Southwest Slide, returning by the trail over the ridge. Many interesting geological observations were made, — the fossiliferous limestone discovered on Chesuncook Lake, the banded slates at the Ripogenous Gorge, and the boulders and pink granite upon Mt. Ktaadn being especially interesting. According to new calculations made by the engineers, about fifty-eight feet must be added to the elevation formerly given the mountain. Many interesting views were shown taken by the speaker, besides a few by a professional photographer.



Photographed

Sept. 14, 1890

11. MOUNT FUJI MORAINES LAKE

From a Photograph by W. H. W. W.



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No. 4.

Two Camps in the Canadian Rockies.

BY FRANK W. FREEBORN.

Read April 15, 1908.

THE Alpine Club of Canada was organized at Winnipeg in March, 1906. The prime mover and first president was Arthur O. Wheeler, the Chief Topographer of the Dominion. The membership is made up mostly of residents of the central and western provinces, Manitoba, Assiniboia, Alberta, and British Columbia. Ontario and Quebec have thus far been slow to recognize the advantages of the club and the call of the various activities to which it invites them. In fact, out of the present membership of over three hundred, nearly as many reside in the United States as in Ontario and Quebec combined.

According to a provision of the Constitution, a summer camp of a week's duration is established annually. In 1906 it was held early in July on Yoho Pass in the Rocky Mountains, about nine miles, as the crow flies, north of Field Station on the Canadian Pacific Railway. In perfection of arrangement and management, in picturesqueness of situation, and in the accessibility of scenery of surpassing interest, it left nothing to be desired. Nearly a hundred members were present, three of them well-known members of the Appalachian Club.

Yoho Pass is a depression between Mounts Wapta and Vice-President, which form together the western wall of the lower Yoho Valley. To reach the camp, a good wagon road is followed for seven miles to its end at Emerald Lake. From there a bridle trail leads around the lake and up, in about three hours, to Yoho Pass. The pass is covered with a forest of magnificent spruces and balsams, eighty to a hundred feet high. There, in a

couple of natural meadows on the shore of Summit Lake, at an altitude of about 6000 feet, were pitched the thirty-odd white tents. The water of the little tarn, in the varying lights of sunshine and shadow, showed all the shades of green from robin's-egg to bottle. Just south of us rose Mount Wapta, a massive tower of rock 3000 feet above the lake. On the other side was a sharp pinnacle of nearly the same height, the southern buttress of Mount Vice-President.

The president of the club with his force of assistants, released for the time from their topographical work by the Dominion Government, and several well-known packers of Alberta and British Columbia who had generously volunteered their services, had got the camp in readiness even to the abundant balsam "bushing" of the tents, and filled a big supply tent with provisions. In the dining-tent, a huge canvas stretched without side walls over a rustic framework, the campers sat on log benches along tables covered with enamelled cloth. Two Chinamen, whose daily task began before dawn and lasted till after dark, cooked and served the homely but abundant fare. And when it is considered that it took a pack-horse five hours and cost him a climb of two thousand feet to bring a load from the railway at Field, the abundance and variety of the fare is worthy of remark. Too much cannot be said of the capacity, skill, and tact of the president in organizing and building the camp, and in managing the manifold activities of the week.

One important consideration in the selection of a camping-place is the nearness of some mountain of at least 10,000 feet; for except for a few whose achievements in scientific or literary alpinism are conspicuous, the climbing of some such summit is an absolute prerequisite to active membership in the club. And so every day of the camp week a party of ten or twelve gathered for an early breakfast, after which, lined up before the president, they responded to the roll-call of the company and got their directions from him. Then, accompanied by either a Swiss guide or some experienced mountaineer of Mr. Wheeler's staff, they would start upon their climb, to return late in the afternoon with burned faces and tired legs, but with hearts happy and spirits elated by success.

The Vice-President, rising directly from Yoho Pass to a little

above the ten thousand foot limit, gave a proper variety of alpine experience, — broken rock, and cliffs, and glaciers, and wide snow-fields. The ascent usually occupied about six hours and the descent about four. The pace was so regulated as not to discourage or exhaust the less experienced; and to the credit of the leaders be it said, of the forty and more novices who fought for active membership on the Vice-President, not one failed to reach the goal!

The Yoho Valley is about fifteen miles long, with a width nowhere greater than a mile. The floor of the valley is about 5000 feet above sea-level. At its head and on the heights along its sides are many square miles of glaciers. Above those fields of ice rise peaks to the height of nearly 11,000 feet. The lower part of the valley towards the Kicking Horse Pass is so narrow, and its sides are so precipitous, that at the time of our camp there was no trail through it.¹ By the summer of 1908 a wagon road, built by the Canadian Pacific Railway, will be completed from Field to the foot of the great fall.

Amid the grand and beautiful scenery of the valley its unique distinction is the Takakkaw Fall, more than a thousand feet high, a magnificent cataract when the summer sun is melting the snowy masses above, but dwindling to a slender cascade as soon as come the chilly days and colder nights of early fall. Whether seen from the brink of the Yoho River near its foot, or from the western rim of the valley two miles away and fifteen hundred feet above it, it is equally impressive by its overwhelming mass, its dazzling beauty, and its awful roar.²

The most considerable and most attractive excursion from Yoho camp was a two days' tour of this valley. Threading a steep trail for two hours, we descended a thousand feet or more to the foot of the Takakkaw Fall. Then, following up the valley a few miles, we came just beyond Lake Duchesnay to an auxiliary camp. A few minutes away the Yoho River plunges through a deep, narrow gorge of jagged, bare rock. A few rods distant on the other side is the charming Laughing Fall, a cascade that anywhere else than near the Takakkaw would be an attraction sufficient to allure the traveller many miles. A little way beyond

¹ See APPALACHIA, Vol. X., p. 373.

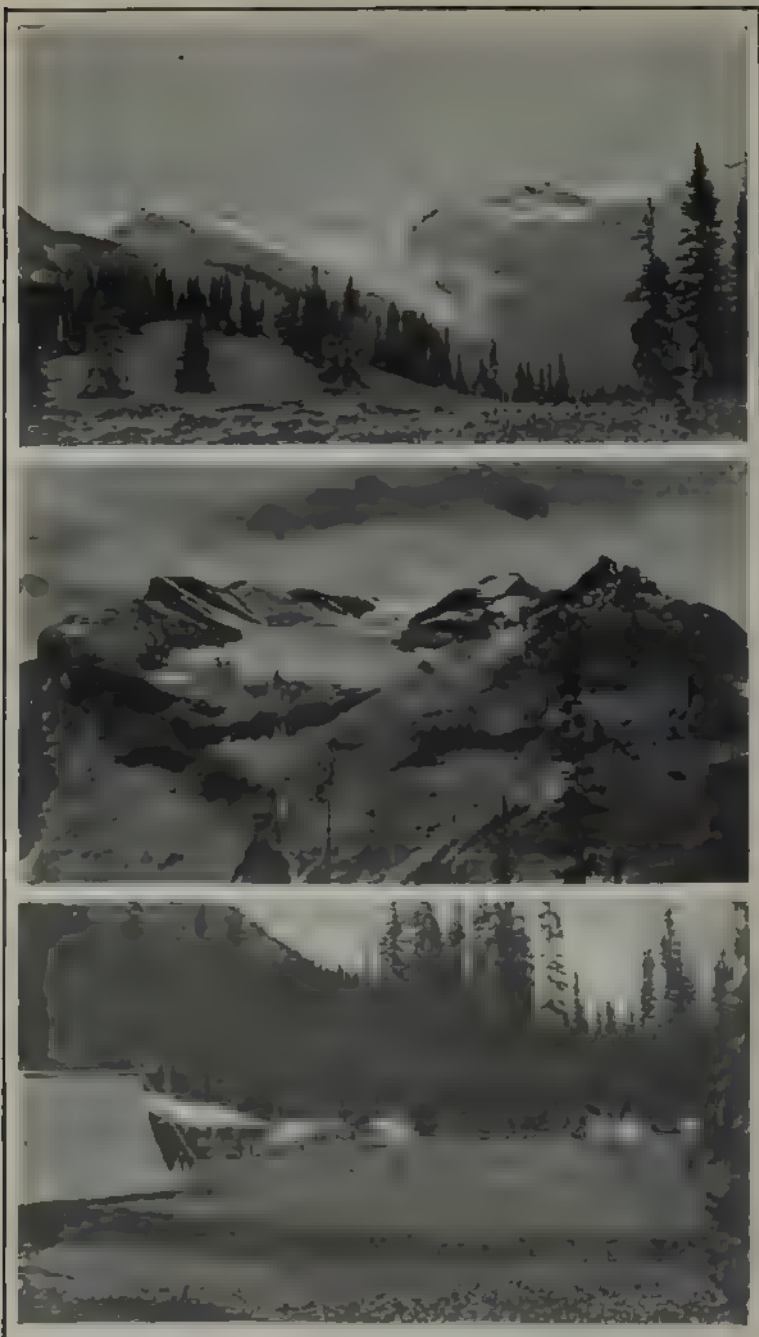
² For a fine view of it, see APPALACHIA, Vol. IX., Pl. XXX.

it the trail crosses the Yoho River, too deep and swift to ford except with horses.

A little farther on the trail divides, the right branch going to the Wapta Glacier, that closes in the northern end of the valley. The other, climbing out of the valley to the trail that skirts its western side, brought us in half an hour to the Twin Fall, where two streams from the high glacier-fields between Yoho and Isolated Peak flow through deep clefts in the cliff and fall about five hundred feet into a common basin with mighty roar and clouds of spray. Below the stream is quite unfordable, and the swollen waters were crowding up through the crevices of the log bridge and threatening to carry it away as we went over it. It is eight miles from there to Yoho Pass. The trail goes on under grand forests, past bright green lakes, through meadows studded and patched with brilliant flowers, over knolls with magnificent outlooks, across rough moraines of near-by glaciers with a score of rushing streams to cross as best one can, until, after surfeiting us with the variety and beauty of the scenery, it suddenly drops down a steep forest slope to the club camp.

If the route we took to camp by way of Emerald Lake was full of landscape charm, the return to Field that most of us followed by way of Burgess Pass had much more of grandeur to show. This trail mounts from Yoho Pass along the western side of Mounts Wapta and Field, that form the eastern boundary of Emerald Valley, and after an hour or more with a thousand feet of ascent brings us on to Burgess Pass, the ridge connecting Mounts Field and Burgess. From this trail through its whole length, and from Burgess Pass, the outlooks towards the Vice-President and its neighbors on the north and towards Cathedral and Stephen and Vaux on the south are most impressive. From there a quick descent of more than three thousand feet, for the most part through forest, brings us to the hotel at Field and the end of the jaunt.

In 1907 the camp was pitched in Paradise Valley, about eleven miles from Laggan, the station for Lake Louise Chalet, three miles away. The Chalet, now become a large hotel, was our point of departure for camp. From the hotel to camp was a tramp of three hours. The trail, starting out south from the



THE WAPTA GLACIER HEAD OF YHO VALLEY
MT VICE PRESIDENT EMERALD RANGE
CAMP OF 1906 YHO PASS

From photographs by F. W. Freeborn

hotel, led through a noble forest over the lower slopes of Fairview and Saddle Mountains, and then, turning sharply to the right under the towering cliffs of Sheol, climbed gradually up the valley. The season had been wet, and in many places the trail was a quagmire, and shortly before we reached camp it crossed about an acre of snow several feet deep, the remnant of some winter avalanche.

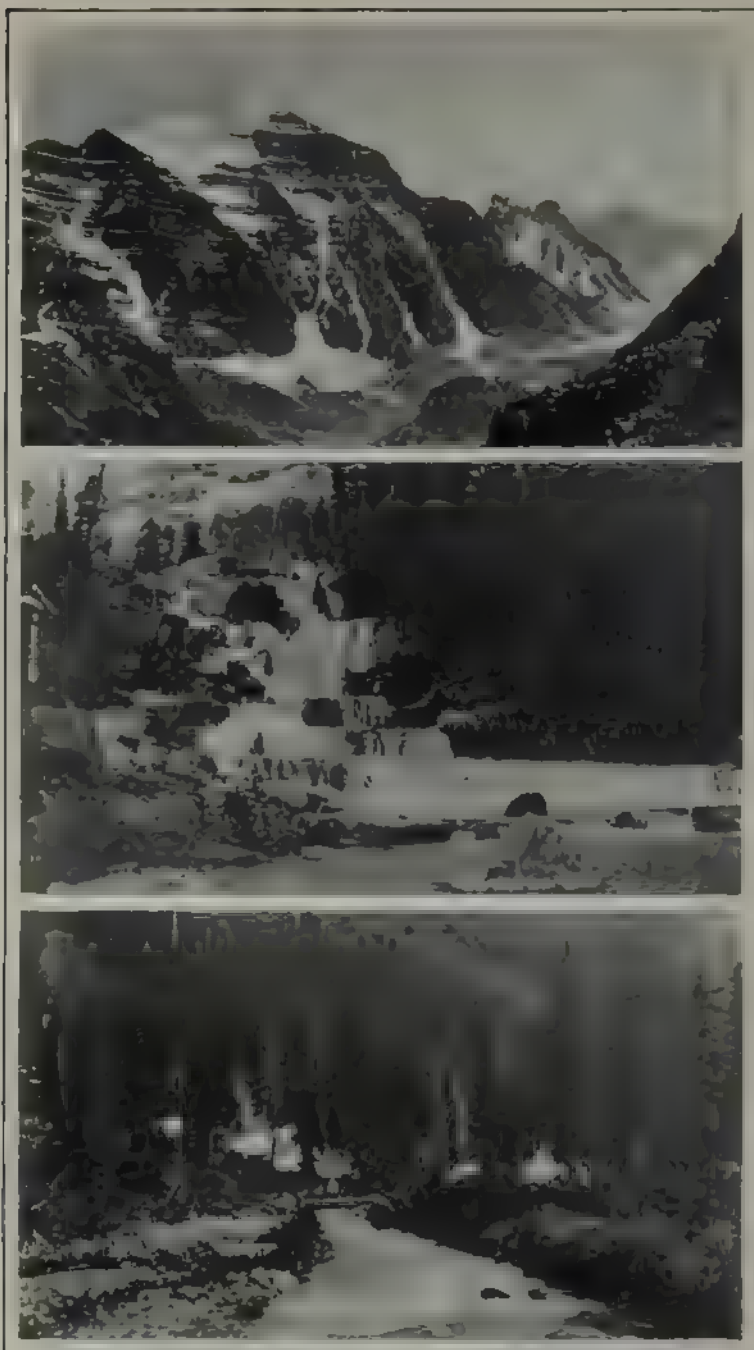
Paradise Camp was built on both sides of an ice-cold torrent; at any rate, the temperature of the water varied but little from 36° during the week. The two sides of the camp were joined by a new log bridge. It had been intended to put the camp in a charming open meadow a mile or more higher up the valley; but the site was so nearly covered with fields of lingering snow that a less convenient place was chosen. And so a lot of scrubby undergrowth had to be cleared out in the spruce and balsam forest to make room for the tents. But the energy of President Wheeler and his helpers overcame all difficulties, and the camp was ready in time for the hundred and fifty members who were to share it. The tents of the officers, the big dining-tent, the cooking-tents, the camp-fire, and the tents of the women were on one side of the creek, and the men's tents on the other.

If the site of the camp was less convenient and picturesque than that of the Yoho Camp, it far surpassed it in the grandeur of the surrounding scenery. It lay at the narrowest part of the valley. Close at hand on the south rose the tremendous mass of Mount Temple, the highest mountain of the Laggan group, with its glorious cap of snow hundreds of feet thick. On the other side was Aberdeen, with long buttresses to right and left, walling in the valley for the greater part of its length on the north side. Up the valley and filling the end completely from side to side Hungabee closed the prospect, its inaccessible brown and yellow cliffs seamed with hundreds of snow-covered ledges. On its left and separated from it by Wastach Pass were Pinnacle and Eiffel, with their black precipices. On its right and hardly less impressive with mass and height stood Lefroy, with its crown of glaciers. The whole head of the valley was filled with the Horseshoe Glacier, made from the eddyng snows that sweep over the summits and the avalanches that thunder down the steep sides of Hungabee and Lefroy.

For qualifying climbs for active membership, Temple, with its 11,626 feet, and Aberdeen, with its 10,340 feet, offered every opportunity. It was no little advantage that the amount of climbing was reduced by the elevation of the camp, which stood at the height of 6300 feet. Sixty-seven new members thus qualified, and many already "active" members enjoyed the exhilaration of the ascents and the magnificent prospects that greeted their eyes at every point. Both Temple and Aberdeen offer sufficient variety of work to make the climbing interesting, though neither presents such alpine difficulties as their height and general appearance would suggest.

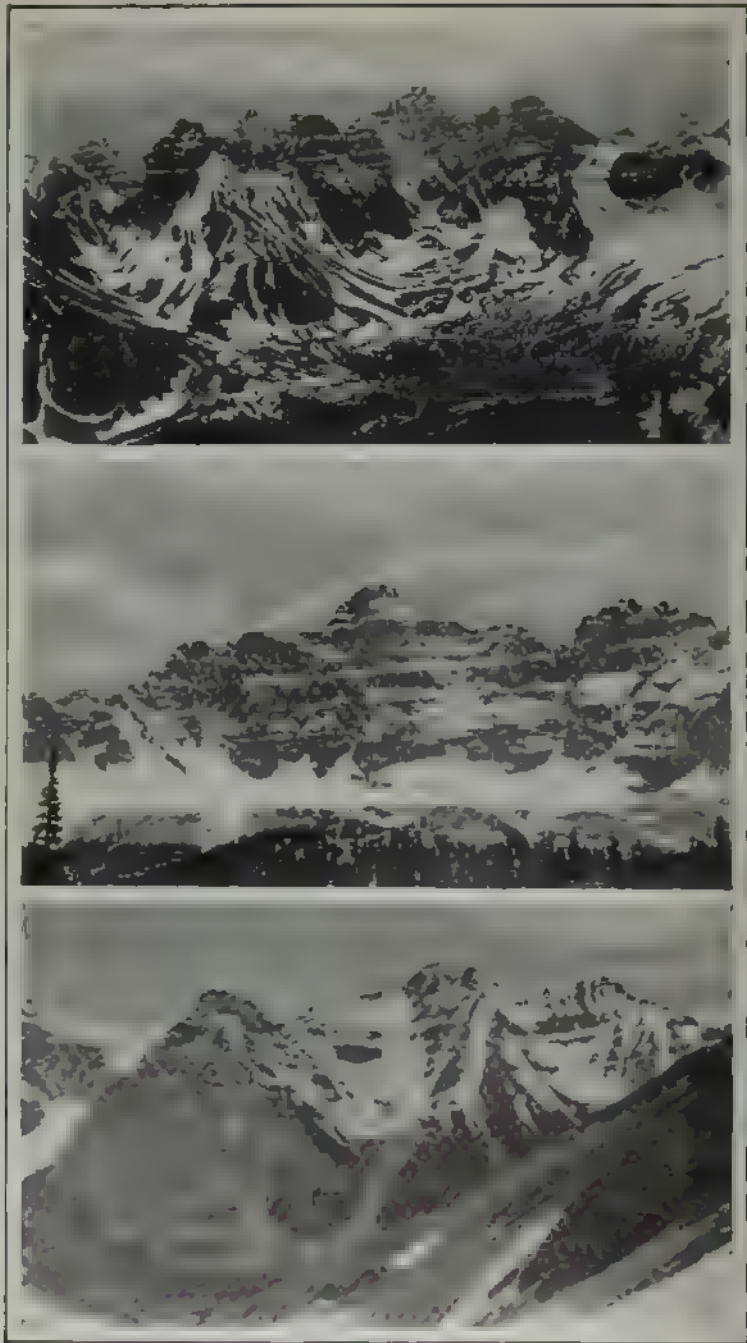
The masses of hardened snow remaining everywhere from the extraordinary falls of the previous winter and spring were a great help to us on most of our trips. Their steep slopes gave us a chance to make many a convenient stairway by kicking out steps in the snow, and many a quick descent by turning ourselves into human toboggans where usually progress was made only by slow and careful plodding over broken rock. And as the rules of the club and a natural adaptation to the fitness of things led the women of the parties to adopt for such days the costume of the men, they could get their full share of the advantage and exhilaration of the glissades. With this help we made the whole descent of Aberdeen in just one fourth the time the ascent had required of us. But oh, the darning and the patching our speed cost us! One climber, forewarned, sewed on a big white patch before starting. The watcher in the valley had no difficulty in locating that party all the way up.

For two days' trips auxiliary camps had been established at Lake O'Hara and Moraine Lake. The former jaunt was by far the longer and more taxing of the two; the way was more rugged; it led over five passes, including Abbot Pass, and it completely encircled the masses of Lefroy and Hungabee. Moraine Lake is in the Valley of the Ten Peaks just south of Paradise Valley. Most of those who made the two days' jaunt to it returned by the bridge trail around the east side of Temple. On that route we climb two thousand feet above the camp to Sentinel Pass between Temple and Pinnacle. At the top there bursts upon our view that splendid line of grim, scarred peaks with Mount Fay, the most alpine of them all, looking over a



MT. TEMPLE FROM SADDLE MOUNTAIN
GIANT STEPS FALLS
CAMP OF 9.7 IN PARADISE VALLEY

From photographs by F. W. Fieborn



PARADISE VALLEY FROM MT. ABERDEEN
MT. HUNGABEE AND HORSESHOE GLACIER
MT. ABERDEEN FROM SENTINEL PASS

From photographs by F. W. Freeborn

shoulder of Temple. Just below us is the upland depression, called from the forest of larches in its lower part, Larch Valley. Snow lay everywhere, two feet deep in the woods, and the little lakelets at the head of the valley still carried their winter covering of ice. But with all these discouragements to growth the venerable larches were putting out their dainty leaves. Some parties, instead of descending from there to Moraine Lake, a thousand feet below, skirted the southern slopes of Pinnacle and Eiffel, and returned to Paradise Camp the same day by way of Wastach Pass between Eiffel and Hungabee, with most inspiring memories of the views from the pass back over the great Wenkchemna Glacier, that lies along the northern base of the Ten Peaks, and forward to the stately mountains that rim Paradise Valley on the west and north.

For those whose strength was unequal to the more strenuous work there was the climb of a few hundred feet to little Lake Annette, a verdant tarn in a basin where the forest and avalanches meet on the side of Temple, or a stroll up the valley past the Giant Steps Fall to sit under the larches in the upper meadows and watch the avalanches pour with thundering roar down the cliffs of Hungabee and Lefroy.

The big camp-fire, surrounded by long logs for seats, was witness to much evening jollity and goodfellowship. The campers were from many walks of life: teachers galore, tradesmen, doctors, artisans, lawyers, ranchers, artists, ministers, manufacturers, and those who live by the pen. One evening was devoted to a mock-court filled full of brightness and wit. Another was given up to the reading of the first number of the "Alpine Herald," the camp newspaper, hastily written contributions of the most varied sort. Two were devoted to business meetings, and the rest to general amusement with songs and good stories. The healthy, happy faces of the campers, the swirling, leaping flames of the fire, the gloomy firs lifting like pillars far into the sky, and the pure white crown of Temple, lighted by the glow of the late twilight, made a picture to stir the heart of any lover of his kind or of Nature; while the occasional booming of an avalanche came to inspire a sense of the mighty forces that reign in that magnificent valley.

In weather we were greatly favored. Though we had snow-

squalls a plenty on the opening day, the Fourth of July, and cold nights of course throughout the week, the days after the first were fine, and the camera folk were happy. With scones and experiences like these the week passed all too soon. But in the heart and memory of those who were fortunate enough to share it there are treasures laid up that can be destroyed only with life itself.

A New Ascent of Mount Fay, Canadian Rockies.

BY J. ADDISON REID.

Member of the Alpine Club of Canada.

Two weeks before the ascent of which I am about to write, I had never seen a mountain. This by way of explanation, in case experienced mountaineers should smile if I exaggerate the commonplaces of a mountain climb into exploits and the parts perhaps not more than ordinarily difficult into achievements.

The ascent was made during the second annual camp of the Alpine Club of Canada, held in Paradise Valley, near Laggan, on the Canadian Pacific Railway, — a most beautiful valley, appropriately named. Hungabee, the Chieftain, stands guard at its head, and its flanks are formed by Mounts Lefroy, Mitre, and Aberdeen on the northwest, and Eiffel, Pinnacle, and Temple on the southeast.

Lying nearly at right angles to Paradise Valley on the southeast is the Valley of the Ten Peaks, a wild and beautiful spot, almost savage in its majestic grandeur. "Desolation Valley," it was once called. Eiffel, Pinnacle, and Temple form its northwesterly flank. The first two of these mountains are both over ten thousand feet in altitude; but the outstanding feature of this side of the valley, and completely overshadowing the others, is the gigantic, helmet-like massif of Mount Temple, reaching an altitude of 11,626 feet above the sea, one of the highest mountains to be seen from the railway. Its curving southeasterly flank is formed by the lofty, rugged range known as "The Ten Peaks," varying in altitude from barely over 10,000 feet to the 10,825 feet of Mount Deltaform. The first of these is Mount Fay, 10,612 feet, and second in altitude only to Mount Delta-

form, the eighth in order in the series of ten. Nestling in the bottom of the valley at the foot of Mount Temple lies Moraine Lake, one of the most beautiful lakes in the Rocky Mountains. On the other side of it, at its lower end, rises Mount Babel, with its round-shaped, flat-topped, projecting shoulder, known as the "Tower of Babel," standing out as a westerly spur of Mount Fay, beyond which opens the glen which, by reason of its contrast with its wild neighbor, was named "Consolation Valley."

It was from the camp at the foot of Moraine Lake, one of the outlying camps maintained by the Club during the period of our outing, that we made our ascent of Mount Fay. Our party consisted of Mr. L. Q. Coleman of Morley, Alberta; Rev. George R. Kinney of Victoria, B. C.; Rev. W. J. Haggith of Banff; and myself, with Gottfried Feuz, one of the Canadian Pacific Railway Company's splendid corps of Swiss guides. Mr. Coleman and Mr. Kinney were experienced mountaineers; my own mountaineering experience had been limited to the previous week, during which I had climbed Mount Aberdeen and Mount Temple; but for Mr. Haggith, this was to be a first ascent.

That morning we arose at three o'clock, for our climb promised to be an arduous one, and as we were due to make Lake Louise Chalet that night on our return, our day would be none too long even with that early start. At twenty minutes after four we were off, Gottfried in the lead. Our course took us around the head of the lake and up the tongue of the glacier lying at the foot of Mount Fay and between peaks Two and Three on the southwest and Mount Babel on the northeast.¹ As we passed along the wooded shore of the lake in the gray dawn, the giant peaks reflected perfectly from its placid green surface, it seemed as if there could be nothing more ethereally beautiful for the eye of man to gaze upon. As the rising sun steadily dissipated the darkness, the lovely sheet of water fell lower and lower beneath us; but as long as it was visible, it remained a perfect dream of beauty.

We were unable to see our mountain from the camp, as it was hidden behind Mount Babel, but I had seen it only a couple of

¹ All previous ascents have been made by the couloir between peaks Three and Four, though the route of this party was the one chosen by Professor Fay's party for their first attempt, but refused by their guide.

days before from the summit of Mount Temple, and studied from there its great snow-field and rugged and majestic precipices. Crossing the main stream which feeds the lake, we soon emerged above timber-line and upon the glacier. This lower part of it is mostly "dry" glacier, covered loosely by a thin coating of morainal débris. From here the rocky precipices of our peak began to come into view, although we were now too close to be able to see the mountain as a whole.

We had proceeded only a short distance up the glacier when we stopped to rope up. Gottfried removed his rucksack and commenced to uncoil his rope. Tom Vickery, our camp cook, had insisted on sending a sufficiency of lunch for five hungry men, so that rucksack was not a light one. I had my kodak slung across my shoulders, but its weight was not noticeable. Mr. Kinney, however, carried a photographic outfit weighing at least forty pounds. The rest were unencumbered. Gottfried approached me with one end of the rope and tied it around my waist. That meant that I was to be last man, the significance of which I was much better able to appreciate at the end of the day than I was then. Next Mr. Haggith was tied up, Mr. Kinney and Mr. Coleman coming next in the order named, Gottfried fastening the other end of the rope around his own body.

The night had been the warmest of our whole outing. Even before leaving camp the roar of avalanches had begun to strike our ears, and now as we proceeded on our ascent a series of resounding crashes just ahead of us and above warned us that there was something happening that might be of very close personal interest to us at almost any moment. An unusually loud crash was followed in a moment by a long train of ice boulders rolling down the slope right in the path we had been following. Our guide had been expecting this, however, and by that time had got us around behind a projecting shoulder of Mount Babel and out of the track of the avalanche. But this was only the beginning, and as crash succeeded crash the ice came down in greater quantities, spreading over the glacier and coming nearer and nearer to us. We were here ascending a steep snow-slope and heading for rock-footing alongside of it. I was the last man to reach the rock, of course, and just as I stepped from the snow, a huge ice boulder rolled not ten feet from me. At least,

as I cast a backward glance over my shoulder, it assumed huge proportions in my eyes and seemed very, very close.

We skirted the base of the cliff for some distance, and then were obliged to take to the glacier again just beneath the huge overhanging cliffs of solid ice, honeycombed with large dark green caverns and studded everywhere with strangely fantastic projections. We had to surmount these by scrambling up over ice and snow and rock until we were able to proceed along the cliff again. All that I have read before or since about the friable nature of the limestone rock in our Rocky Mountains had been more than confirmed on our ascent of Mount Aberdeen. But that was easy and safe compared with this ascent. A touch would often dislodge a boulder and send it rolling down the cliff, and a man's weight in the wrong place might precipitate a small avalanche, while it was the easiest thing in the world to start a shower of small rocks down the precipice.

We advanced a considerable distance along the side of the cliff, though mounting higher and higher at each step, until we reached the upper portion of the glacier and had again to take to the ice, which from here on was covered with snow. If it had looked great and wonderful down below, much more so here. The first part of our way lay between two parallel lines of tall, overhanging ice-cliffs, through which we emerged into the open and comparatively level *névé*. Here the surface of the glacier was pierced by yawning caverns and rent by great crevasses, spanned here and there by a bridge of snow, — how strong, there was no telling without testing it.

With a warning to keep our ropes taut, our guide leads off toward one of the snow-bridges, the rest of us stretched out behind him to the full length of the rope. Carefully he inspects it, testing it here and there with his ice-axe, at length decides that it is not safe, and orders a retreat. This is only for a short distance, however, and then he tries another crossing. Testing it as before, crawling nearer to the mighty crack in the ice and looking down, he finally gets his axe planted firmly on the other side at the length of his arm and half his body, calls for some slack in his rope, and is across. Then he gives the rope a hitch around the head of his axe to support number two in case he should fall through while crossing. Number three and four

cross, assisted in the same way. Now the line has stretched out to its full length again, and I am to cross. I know there are enough men on the other end of the rope to hold me in case I should fall into the chasm, and I make no objection.

Again we are off, and now very soon begins our ascent of the steep snow-slope,—or rather ice-slope, for it is but thinly covered. It is leading up to a towering crest just above us which, until now, had been enveloped in cloud, and which still has a mist hanging over it. Slowly we ascend, step by step, Gottfried ahead, chopping each foothold out of the ice, while we come behind, hanging to the face of the ice-slope for dear life with our ice-axes. We are up the first part of the ice-slope, but from here on it is much steeper, and separated from the part we are on by a great bergschrund, the upper portion clinging at an alarming angle to the rock-face of the cliff. I wonder if it will start with our weight as the lower portion did with its own. Up we go, zigzagging across the face of the slope first to one side and then to the other. At length we are on the ridge above, a veritable knife-edge of rock, and can look down on the immense snow-field to the south of the Ten Peaks, 9000 feet above the level of the sea, and beyond it into Prospectors Valley, 3000 feet lower still, and away beyond it again to the sea of snow-capped peaks stretching far beyond the horizon's bound, their lofty summits, unfortunately for our view, mostly lost in the clouds. Now we are again mounting towards the summit of the lofty eminence for which we have been aiming, and at last are on its crown. We could see nothing beyond it until the moment we were able to look over, and then we saw a deep and narrow cleft away beneath us, and on the other side a rocky crag towering over two hundred feet above us. That was what we had to surmount yet. But the shelter of these rocks furnished a suitable place to eat our lunch, for we had now been over four hours out from camp.

Lunch eaten, we started once more down the rock-face to the snow, across the snow, and up to the rock again. Here we had an almost perpendicular climb to the summit crest. How loose and unsubstantial the sides of that cliff were! And I was right in the path of every rock dislodged by the other four! I took what little consolation I could out of the fact that there was no



RESTING BESIDE THE CARN
COL AND NÉVÉ BETWEEN MTS. FAY AND LITTLE
ICE CASCADES ON CLIFFS OF MT. FAY

From photographs by J. Addison Reid



VIEWS FROM SUMMIT OF MT. FAY

(1) NORTHWEST.
Mt. Hungabee
and LeROY

2, WEST
Peak 'S' &
De taform and Neptusk

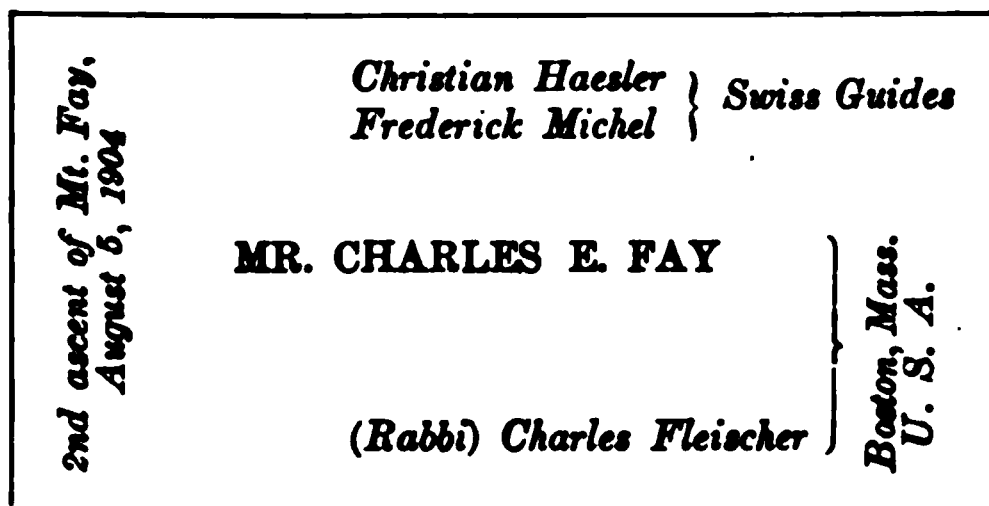
(3) SOUTH
Mt. Ball
in background

one beneath me to be injured by any avalanche of boulders that I might precipitate. Strangely enough, we all got up intact. I made no attempt to dodge the falling rocks. Clinging to the face of the almost perpendicular precipice, hanging on by toes and hands and ice-axe, wishing there were some way of further supporting ourselves by hanging on with our teeth, at each warning shout I crouched with my face close to the rock — I'd sooner get them on the top of my skull than in my face — and waited for what might happen.

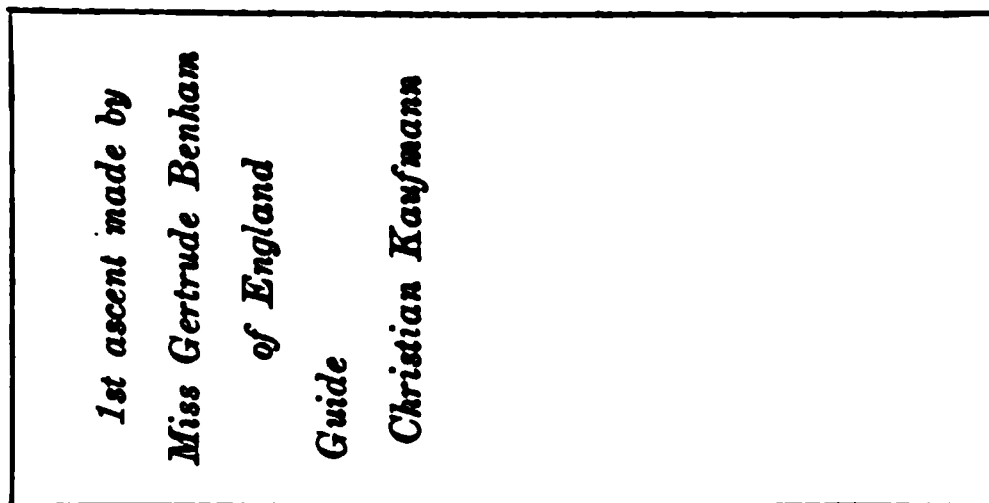
All this while we are steadily ascending. At length we have surmounted our crag, but still the mountain rises above us. On we go, and at length emerge into the upper snow-field. Our goal is now in sight. There it is on the summit of that ridge. Yet that point reached, we find a depression in the snow and beyond it another ridge. This repeats itself several times. But surely this next is the summit. Yes, there are peaks appearing on the other side. This ridge surmounted, we discover another deep valley in the snow-field and beyond it a still higher ridge of snow. Down we go and up the other side, and now at last we are actually on the summit of Mount Fay. Here is the rock cairn that marks the first ascent. It is ten minutes of twelve.

There was n't much room to move around, but we unroped while photographs were being taken. The summit was not corniced, and we were able to crawl to the edge and look down the sheer precipice that faces Mount Temple. A rock dropped over the edge seemed to fall for ages before it met anything to arrest its flight.

Moving aside one of the stones at the base of the cairn, we discovered a card, almost as fresh in appearance as it had been when placed there three years ago. It was one of Professor Fay's cards, and his name was engraved in the centre. The other writing was in pencil, and the arrangement was as follows:



The reverse side was as follows:—



I had one of my cards with me, and on the reverse side of it we wrote the date and names of our party. Mr. Haggith also had his card, and these two were placed underneath the cairn with the one we had found there.

We spent about an hour on the summit while this was being done and photographs were being taken. Our view, as we swept the horizon on every side, was magnificent, but not clear or distinct. A large white, fleecy cloud had hung all morning around the side of Mount Temple, its snowy summit showing several hundred feet above the cloud. This white mantle had disappeared, however, by the time we reached the summit of Mount Fay, but almost every other high peak within the range of our vision was in the clouds, making the identification of them difficult or impossible. But who will say that the vision of God's world of mountains, swathed in filmy fleecy clouds, is not as wonderful and magnificent a view as the same scene when the sky is cloudless? I had looked on the same glorious panorama only a couple of days before from the summit of Mount Temple, when the snowy peak of far-off Mount Sir Donald in the Selkirks was the only one in all that boundless ocean of mountains that was lost in cloud, and then the cloud apparently only rested upon his head as a diadem.

But our hour seems all too short, and at last we have to take our places on the rope again to commence the descent. I have to take the lead now. Across the snow, when I can follow our footprints, this is easy, but on the rocks it is a different matter, for there our tracks are not always so clearly marked. Gottfried, standing on a rock forty or fifty feet above me, has to direct me at every turn. In scrambling down we are unable to

avoid dislodging twice as many rocks as we did in the ascent, and they are constantly rolling down on either side of me. The only accident met with on our expedition was in the early part of the descent. I was not very securely perched on the side of a precipice at a right angle to the line of the rest of the party and Mr. Haggith was making toward me, when a long, flat slab of rock shot out from above, the sharp point striking him in the small of the back. It was a miracle that he was not thrown from the rock on which he was standing. It knocked the wind out of him, and it was a few moments before we were able to proceed, but he pluckily came on, declaring that he was not hurt.

Down we go, making steady progress until we reach the glacier. At length we come to where we have to descend beneath the lower overhanging ice-cliffs. The previous night had been a warm one, and the day was one of the warmest of the whole camp. Even on the summit of the mountain the snow had been melting, and now down every seam in the mountain-side a stream of water was pouring. What had all this been doing to our glacier while we were up above? Here we were in a position to see what had been happening. The tongue of the glacier, where we had commenced our ascent, was strewn for almost its entire length with piled-up ice boulders. But another part of the glacier concerned us more immediately, and that was the overhanging cliff beneath which we had now to descend. All the snow which had given us a footing in the morning had melted or washed away, and over the rocks on which we were standing and from which we had to descend was pouring a stream of water. Gottfried comes to the front and shows me exactly where to place the point of my ice-axe, where to plant one foot and then where to place the other, and also where to hold on with my hand. Then he seizes my rope and orders me to get down. I follow his directions, and supported by the rope from above I am able to land on a ledge beneath the overhanging ice and then move down to a firmer footing below. Then Mr. Haggith comes down, lowered in the same way, and I have to assist him by placing his feet in the proper places and supporting them when there is no foothold. He reaches my ledge and I move on a little, while the next man comes down assisted in like fashion. Down we scramble over that water-swept rock, now sitting in it, now

grasping it lying on our stomachs, now with our arms in it. Gottfried comes last. All this while from every crack and crevice in that mountain of melting ice projecting over our heads, the water is running through and over it. Will it give way and crash down as those others have been doing all day? Soon we are safe around a projecting shoulder of rock. We have not spent an unnecessary second in that ice-chamber, and now we sit down for a rest.

Have we realized the danger we have just passed through? If we have n't, a glance at the ice-field below will help. But however keen our appreciation of the situation may have been, Gottfried's has been much more so. Seated on the rock he quietly declares in his slightly broken English:—

“I'm glad to be out of that place. I never was in a trap like that. They talk about the Death Trap in Abbot's Pass, but it's nothing to that.”

Here we dispose of the remainder of our lunch and take a few photographs; after which the rest of the descent is comparatively easy and without incident; and at half-past five, five tired and hungry but elated men tramp into the camp at the foot of Moraine Lake.

A January Ascent of Mount Marcy.

BY LEWIS A. WELLS.

THE winter excursion of the Snow-shoe Section to Lake Placid, N. Y., last January, naturally brought into consideration the ascent of Mount Marcy, sometimes known by its Indian name of Tahawus, “The Cloud-Piercer,” which is not only the highest peak in the Adirondacks, but also the greatest elevation in New York State, rising 5344 feet above the sea-level.

On our arrival at the Lake, where we were greeted with ideal snow conditions, we learned that but one winter ascent of Marcy was on record, that having been accomplished by Gifford Pinchot, the eminent chief forester of the National Government, in February, 1899, when he made the climb from the south side of the mountain under the most trying conditions. This ascent is very interestingly described in Volume XXXVI. of the “Out-

ing Magazine," by Grant LaFarge, who accompanied Mr. Pinchot nearly to the summit. We likewise learned at Lake Placid that the approach to Marcy was difficult, if not impossible, because of unbroken roads, while the burning of the Adirondack Lodge some years ago had removed the only place where we might have camped over night *en route*; and we did not care to undertake to snow-shoe over the eleven miles to the beginning of the Marcy trail.

Accordingly, on Monday, January 13, 1908, D. A. Harrington and the writer made a reconnoitring trip from the Lake Placid Club, leaving about 9 A. M., and finding fair sleighing as far as South Meadows, a distance of nine miles. From there we followed an exceedingly rough road for three miles to Strock's lumber camp, which is situated at the foot of Mount Marcy and not far from the former site of Adirondack Lodge. Not finding any one who could direct us to the Marcy trail, we pushed on up the lumber road, which we were confident followed closely the trail. At length, about 3 P. M., we reached the clouds from which light snow had been falling all day. We estimated our altitude to be about 4000 feet, and inasmuch as we were near the end of the lumber road, we decided to return. None of the men that we encountered knew the location of the Marcy trail, but we counted ourselves repaid for the trip by the beautiful snow scenes which we had enjoyed all the way from the foot of the mountain, and by the opportunity to observe at close range the operations of the loggers. Our quest for the trail was not to be fruitless, however; for when we arrived at the foot of the lumber road, we found the proprietor of the camp, Mr. Strock, who volunteered to guide us to the beginning of the trail, if we should later desire to attempt the climb. It now being dusk, we hurried over the three miles to South Meadows, where we found our sleigh, and finally arrived at Lake Placid about 7 P. M.

As a result of our demonstration that it was possible to drive to the Marcy trail, a general excursion was planned for the next day, which opened cold and clear. The first party, consisting of six men, left the Club House at 8.40 A. M. in two sleighs, and were closely followed by the second party of about twenty, including several ladies, in a large four horse sleigh. After a drive of twelve miles, the first party arrived at the lumber camp

at 10.50, having enjoyed on the way magnificent views of McIntyre, Colden, Wallface, and the other peaks of the range.

Leaving our sleighs, which returned to South Meadows, we soon started up the lumber road under the lead of Mr. Strock. After about a mile we put on our snow-shoes and followed our guide toward the west into the trackless forest. Here we found about two feet of snow, which materially aided our progress through the dense woods, as yet unravaged by the lumbermen, and after about twenty minutes of very rough going, at times through thick underbrush and over many fallen trees, we saw the blazes of the trail from Adirondack Lodge.

Our guide left us here, and we now began to climb the long flank of Mount Marcy. The distance to the summit is about five miles, the trail leading away in a generally southerly direction with gentle gradients and becoming steeper as we advanced. At first the path was easily followed, but after a mile or so the increasing depth of the snow, which we now found to be about three feet, covered so many of the blazes, which were evidently intended for summer use only, that we found it difficult to keep on the trail.

At one o'clock, at an altitude of about 3500 feet, we stopped a few moments to eat a portion of the lunches which we had brought from Lake Placid. Here the trees were smaller and afforded us less protection from the wind, which we now discovered to be blowing hard from the west. In a short time we resumed the climb and, as the trail seemed hopelessly lost, we pushed on in what seemed to be the best direction. Soon we were high enough to gain views of some of the peaks of the McIntyre range, and after a while we saw the summit of Marcy itself towering in white grandeur above all the others. The forest growth had been constantly diminishing in size, so that now we found only stunted trees and bushes, and presently we came to the end of these. Here at the tree-line our thermometer indicated seven degrees below zero, and the wind was blowing a gale so strong that it was almost impossible to face it.

In view of these Arctic conditions, four of the members of our party turned back, leaving Mr. Harrington and the writer to go on as far as possible. It did not seem to be more than half a mile up the sharp cone to the summit, and we prepared for

the steep ascent by exchanging our snow-shoes for ice-creepers, leaving our packs and snow-shoes securely tied to a stout bush so that they could not blow away. The rocks and ledges were covered with hard, wind-packed snow and some ice, over which our creepers enabled us to progress rapidly. As the northerly ridge of the cone seemed to offer the easiest incline, we essayed to ascend it. At this moment, Miss Laura Banfield and C. A. Newhall, who had come from Lake Placid with the second party, overtook us, having been the only ones of their party to persevere so far. They decided to attempt the summit by way of the southeasterly side of the cone, where the slope is at least forty-five degrees, but where there was shelter from the terrific wind. This proved to be the wisest course, and at 4.10 P. M. Miss Banfield stepped on the summit of New York's highest mountain, the first woman on record to ascend Mount Marcy in winter, the first member of our party to arrive, and the only lady in it who ventured above the tree-line. Mr. Newhall arrived immediately after, and Mr. Harrington and myself, after a futile attempt to ascend by way of the ridge, followed their route up the steep incline and reached the top at 4.15.

The wind was blowing with such force that it was quite impossible to stand against it and, while we did not know the exact temperature, it must surely have been ten degrees below zero. Under these conditions, although the entire country between New Hampshire and North Carolina was below us and superb views extended in every direction, we could stay only a few minutes, and at 4.25 we began the descent. Running and sliding down the steep cone, we quickly reached our snow-shoes and packs and regained the shelter of the woods. We were rewarded by fine views of the magnificent sunset which was followed by a very brilliant afterglow, lasting for nearly an hour, and all the way down the nearly full moon not only lighted our path, but also afforded us beautiful snow scenes, at times weird and fantastic.

The return was without incident, and we arrived at the lumber road at 6.50, taking off our snow-shoes and walking to South Meadows, which was reached at 8.15 and where we found the other members of the party. After a light lunch we returned in the sleighs to the Lake Placid Club, where we arrived at 10.10 P. M., with no one the worse for the trip.

The Volcanoes of the Azores.

BY WILLIAM H. PICKERING.

Read February 11, 1908.

THE Azores consist of a group of islands of volcanic origin, situated far out in the Atlantic Ocean. Flores, the westernmost, is located 1100 miles due west of Portugal and 1250 miles from Newfoundland, the nearest point of the American continent. A visit was paid to this region by the writer in the summer of 1907, in order to compare the volcanic features with those of Hawaii and of the moon. Seven different volcanoes were ascended, two of the most interesting of which will be described in the present paper.

The highest summit in the islands is known as Pico, and is situated at the western end of the island of the same name. What appear to be the three most accurate determinations of its height are those of Colonel Chaves, 7464 feet; M. Fouqué, 7612 feet; and Professor Ferreira, 7680 feet. The two former were obtained by means of mercurial barometers, and the latter partly by levels and partly by survey. If we adopt the figure 7600, we shall probably not be far out of the way. We left the little town of Magdalena, on mule-back, at noon of August 15, accompanied by four guides, and supplies and bedding for the camp. A road, later changing into a bridle-path, leads up the mountain to an altitude of 2150 feet. From that point onward we had to proceed on foot. On our way we passed several small volcanic cones, and reached our camping-place, at an altitude of 4600 feet, shortly before sunset. The guides collected some bushes and constructed a temporary shelter at this point. This bush is called the "urze," and is a species of evergreen full of pitch. When a match is touched to it, it blazes up with considerable smoke, making a very conspicuous signal either by day or by night.

We had a beautiful sunset, the western ocean being visible across and far beyond the great volcanic crater of Fayal. We passed a rather uncomfortable night in camp, without a fire, and I was glad of a thick steamer rug, and another to go over my feet. We were up at half-past two, and left camp at three,



MT PICO (AZORES) FROM FAYAL IN WINTER.



DETAILS OF MT. PICO.

- (1) WALL OF CRATER (2) CRACK IN CRATER FLOOR AND
SHADOW OF CONE (3) CENTRAL PEAK.

From photographs by W. H. Pickering

after a light breakfast. We had four torches to light us on our way over the rough and uneven rocks, but apparently they were of poor material, for they soon went out and left us to scramble along in the darkness as best we could. The coming of dawn at about four o'clock enabled us at length to see where we were. We reached the rim of the crater at half-past five, to find ourselves at the edge of a precipice 150 feet in depth, beyond which, rising from the centre of the crater floor, was the culminating peak, still several hundred feet above our heads.

It is probable that the diameter of the rim was originally about one third of a mile, but the eastern half has been destroyed by a lava stream which had poured from the crater down the steep mountain-side. From the base of the precipice the crater floor rises rapidly to the foot of the central cone, which is situated at about the same height as the top of the wall. The cone itself is steep, and rises 350 feet higher, looking very much like some of those seen in the lunar craters. On its northern side thirty feet below the summit is a craterlet fifty feet in diameter. From one side of it a small amount of steam was being exhaled, the temperature at the vent being 147° F. Another vent was found three feet below the summit of the cone on the eastern side. We found no snow or ice upon our trip, but in the winter snow collects on the summit and has been known to extend down below our camping-place.

Shortly after we reached the summit its shadow was cast upon a cloud, and was seen to be surrounded by a small iridescent halo. Directly across the floor of the crater from the central peak to the southern rim extends a broad, deep crack, similar to the crater rills found upon the moon. Half a dozen little irregular craters are scattered along its length, the largest being thirty feet in width. The eastern side of the mountain is a steep precipice, having a slope of 50°, and down its face, shortly after eight o'clock, a continuous cannonade of falling rocks, loosened by the sun's heat, was taking place.

The upper slopes of the mountain are composed chiefly of large boulders split from the ledge by the frosts, and reminding one a little of some of our higher New England summits. There is little or no fine ash encountered. The solid character of the crater floor indicates its former liquid condition, and its eleva-

tion near the central peak implies the original viscous character of the fluid. While a certain amount of explosive action must have taken place, as is indicated by the scoria upon its lower slopes, it is thought the cone was largely built up, at least towards the end of its activity, from solidifying lava, and that the crater was then gradually enlarged by the engulfment of its walls. Craters formed exclusively of unbroken lava, whether acid or basaltic, must have been produced by the engulfment process, while craters formed of scoria and ashes owe their origin to explosions. We left the summit at seven o'clock, and after a leisurely descent reached the base in six hours' actual time, having had a delightful though somewhat fatiguing excursion.

The Caldeira of Graciosa is in some respects the most interesting crater in the islands, but although quite accessible from the port of Praia by bridle-path, is rarely visited by strangers, since the island is small and steamers seldom stop there more than two hours. There are practically no hotel accommodations on the island. The Portuguese government courteously placed the gunboat Açor at our disposal, and the trip from Horta and return was made in twenty-two hours.

The rim of the Caldeira where it is crossed by the bridle-path has an altitude of eight hundred feet. Its form is kidney-shaped, measuring one and a quarter miles in length by a half mile in breadth. The altitude of the floor varies from 350 to 450 feet. The walls are in many places nearly vertical, and composed of unbroken masses of lava. The floor is of the same material. Upon the floor are four large hills varying from one hundred to two hundred feet in height. Two of them have precipitous sides and one a double summit. There is also a small shallow pond nearly square in shape.

It is a curious fact that in Hawaii, in the craters and on the slopes of Kilauea and Mauna Loa, although these mountains seem to be composed of solid lava, no water collects, either in streams or lakes. It all sinks into the interior of the mountain. The same is true of Pico, where the lava occurs in unbroken masses. On the other hand, in those Azorean volcanoes which seem to be formed of loose heaps of scoria and cinders, and which we might suppose could never retain water, lakes are the

rule, and their absence the exception. Thus four distinct lakes are found within the great crater of Sete Cidades, one of them measuring two miles in length. A large lake is found in the crater of Furnas, another a mile in length and 2500 feet in altitude in Agoa de Pão, another 2000 feet in altitude in the Caldeira of Fayal, and there are numerous smaller ones in the islands.

The floors of these great craters are all of them comparatively level planes. Where such is the case, it seems almost certain that they must have originally been in a fluid condition, even where the crater walls are fragmentary in their structure. Their floors may therefore be composed of solid rock. They are now generally covered either with water or soil, bearing vegetation, so that we cannot readily settle the question by inspection. But even if the lakes of the Azores lie in rocky basins, this does not explain why there are no lakes similarly situated in the Hawaiian craters.

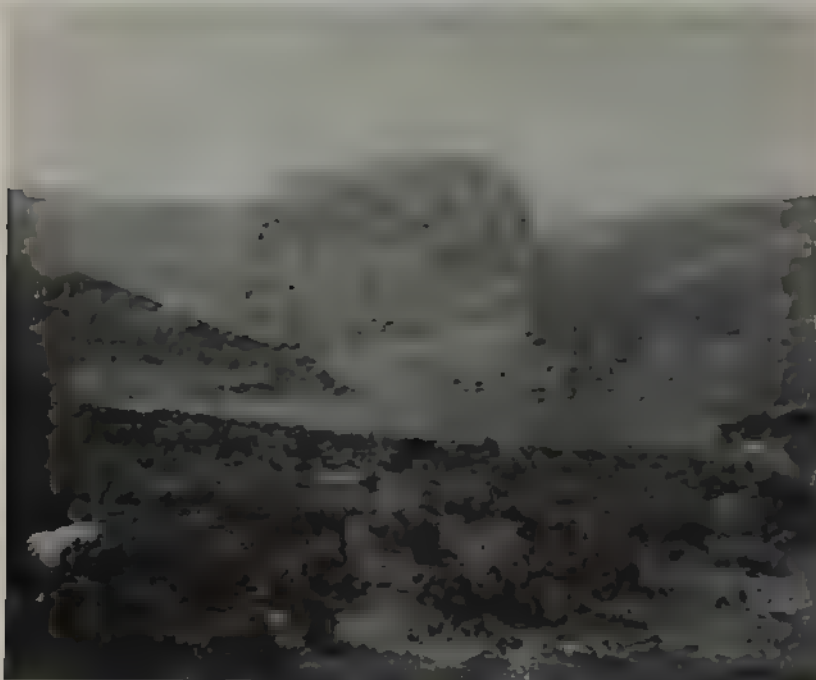
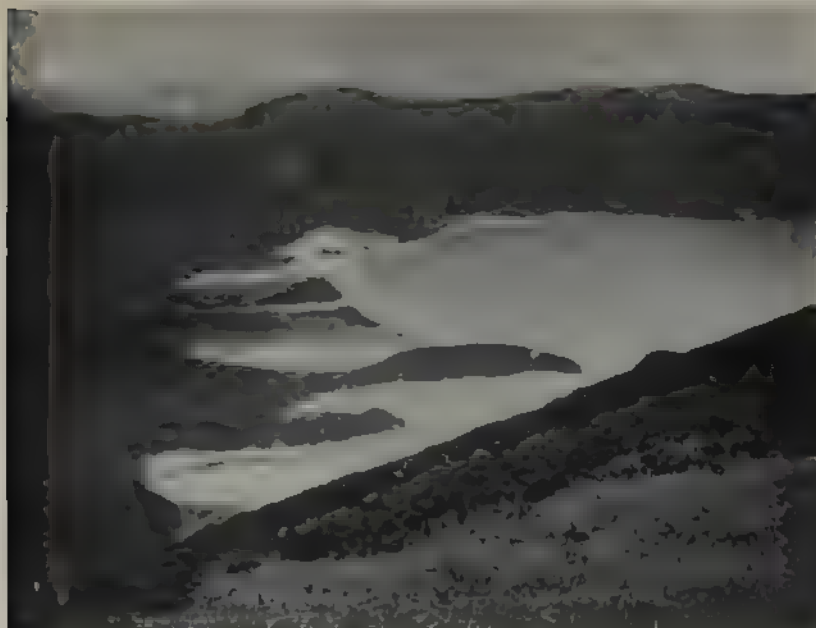
Another respect in which the craters of the Azores differ from those of Hawaii is in the matter of interior peaks. Interior craterlets in Hawaii are by no means rare; but smooth rounded peaks such as we find in Pico and in the Caldeira of Graciosa, resembling those found in some of the craters on the moon, are rarely seen. One of the two hills with precipitous sides in the Caldeira of Graciosa is shown in Plate XLII. It is evidently quite different in type from the other lower and more rounded ones within the crater, and is somewhat like the temporary shaft in Mont Pelée, Martinique.

But by far the most interesting feature of the Caldeira is the cave located at its lowest and most remote end. The entrance to this cave is quite steep, and the method of descent at present employed is extremely primitive. On reaching the entrance, a fissure is discovered, divided into two parts by a rock partition. A rope is knotted about the traveller's chest, by means of which he is to be lowered into the larger of these openings. He takes a second rope, which reaches to the bottom, in his hands. The lower end of this latter is free, and with it he is to guide himself during the descent. A stake is driven into the ground above, and a turn of the first or supporting rope is taken about it, and by means of this arrangement the guide gradually lowers

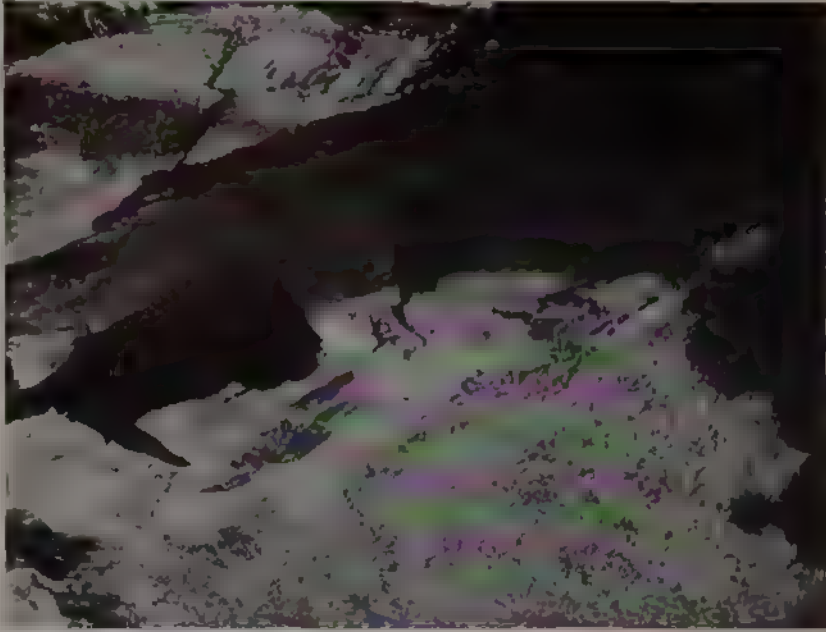
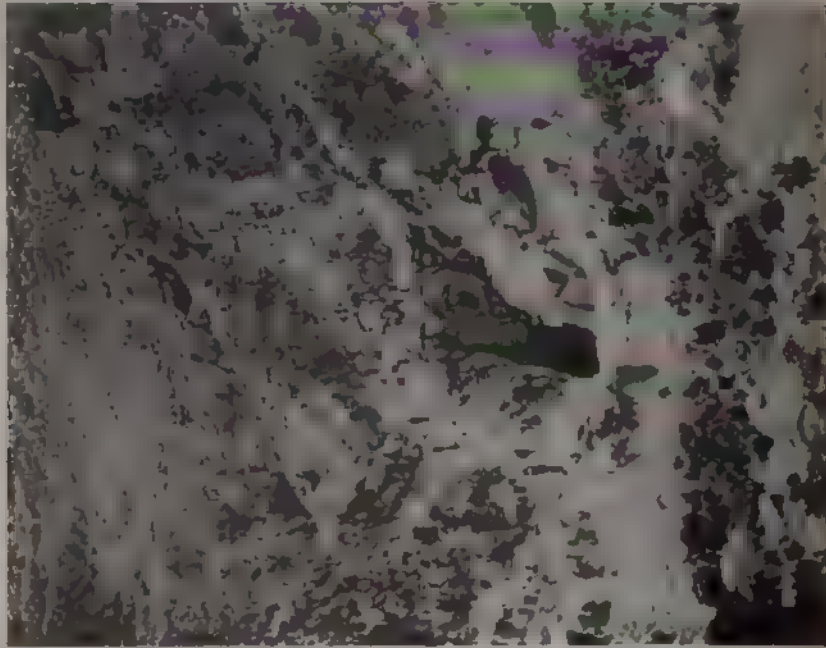
the visitor into the hole. The latter in the mean time faces the guide, and stands with his back to the cave, with one foot on either side of the guide rope. The slope into the cave is at the top inclined at an angle of about 50° . The visitor now proceeds to walk backwards down this slope, leaning far back, so as to bring most of his weight on the supporting rope. The figure of a man making the descent can be distinguished in the exact centre of the left-hand view in Plate XLIII. In the dark space at the bottom can be faintly seen the white hat and shirt-sleeve of one of the guides whose duty it is to see that the traveller lands safely. The proper inclination for the latter's body is about 45° , and he must walk fast enough to keep up with the speed at which he is lowered by the guide, and so control this angle.

After descending about thirty feet the steepness suddenly increases to 80° , and after another thirty feet it becomes vertical. He is now quite invisible to the guide, and an imperfect system of signals is maintained between them by calls. If the visitor is a foreigner, this system is further complicated by the necessity of an interpreter. The pressure of the rope about his chest, and the fatigue in his arms, by which he almost involuntarily supports part of his weight, add to his discomfort if he is not something of a gymnast. To this is presently added the unpleasant observation that the cliff has now passed the vertical stage, has begun to overhang, and is slowly receding from him. He cannot look below him, but he hears voices coming up from beneath, and by the time that the rock has receded so far that he thinks he cannot keep his foothold much longer, his foot is suddenly seized from below by a second guide, and planted on the top of a high pointed boulder. Here he is told to rest for a moment, which he will probably be only too glad to do. The supporting rope is now slackened, and he soon recovers his breath. In a few moments he continues his descent, but it is now merely an ordinary piece of rock climbing, with the rope to assist him, and in a moment he is safe on level ground, ninety feet below his starting-point.

The ascent is more difficult than the descent, for although the visitor has the advantage of seeing where to put his feet, yet the start up the overhanging rock is much more difficult than it



CRATER LAKE IN AGOA DE PÃO
INTERIOR PEAK IN THE CALDEIRA OF GRACIOSA
From photographs by W. H. P. King



was from above on the comparatively gentle slope. Moreover, if he loses his foothold on the overhang coming down, since he is at the end of his trip, it is not of much consequence. On the other hand, if he loses it going up, near the start, it is impossible for him to recover his feet until he reaches comparatively shelving ground, and he must be dragged up over the face of the cliff by the sheer strength of the guides. It was in this part of the trip that M. Fouqué, the well-known French geologist, broke one of his ribs. One of the members of our party lost his footing in the same manner, but fortunately with no serious results. The guides decided that he was too heavy to drag up the cliff, so sent him down a short rope-ladder instead, up which he was instructed to climb to the nearest ledge, where he could be held by means of the supporting rope. The ladder was then drawn part way up and progress made to the next ledge. In this way the top was finally reached. Although perhaps a little slower, this is a much safer and more agreeable method of making the ascent. Under these circumstances, those whose nerves are fairly steady, and who are used to rock climbing, need find no difficulty in making the trip. The cave lies beneath a low ridge extending out onto the floor of the crater from the inner wall. It measures about 600 feet in length by 250 in breadth. The roof is a low arch fifty feet in height at the middle. From the farther end all of the roof and floor are well seen by means of the daylight coming through the vertical hole at the entrance. One side of the cave is occupied by a lake 500 feet in length by fifty in breadth, and the maximum depth is said to be forty-five feet. There was formerly a boat here. The altitude of the cave bottom at the foot of the rope is 250 feet, and at the surface of the lake, 150 feet above the sea.

The roof is smooth, without lava stalactites, and in places large blocks have fallen from the ceiling. The method of formation of such a cavity is not easy to understand. We know that in the case of Halemaumau, Hawaii, the liquid lava gradually rises to the mouth of the crater, and after a few years again recedes, leaving the crater empty. In the case of the Graciosa Caldeira, which in some respects resembles the lunar craters, some such action must have taken place. The surface layer obviously solidified before the cavity was formed. The liquid

layer beneath must then have been drawn off, as at Hawaii, air to fill its place entering the cavern through the cracks communicating with the surface. The floor then solidified before the pressure was later renewed. Little craters, formed naturally in solidifying iron slag, always have similar caves produced beneath them, and it is possible that such caves also exist beneath many of the craters of the moon.

Those interested in the bibliography of the Azores will find all of the following works instructive. The first two are out of print and rare.

“Description of the Island of St. Michel.” Professor J. W. Webster. Published by Williams of Boston, 1821.

Buller’s “Azores and Furnas Baths.” 2 volumes. Published by Van Voorst, London, 1841.

“Die Azoren.” Description and Atlas. George Hartung. Published by Engelmann, Leipzig, 1860.

“Recherches sur la Fauna des Eaux douces des Azores.” Barrois. Published by Danel, Lille, 1896. (This work gives much more general information than its name implies.)

There are also three papers in the *Revue des Deux Mondes* for January, February, and April, 1873, by Fouqué.

Maps based on the work of Captain Vidal, R. N., 1844, may be obtained through the Hydrographic Office at Washington.

Some Altitude Effects at Camps above Twenty Thousand Feet.

BY WILLIAM HUNTER WORKMAN.

Read April 8, 1908.

ASIDE from the overpowering size and weird, savage grandeur of the higher Himalayan peaks, one of the great attractions of mountaineering among them is the opportunity they offer, to an extent nowhere else possible, of investigating the effects of altitude on the human organism, and also of studying meteorological phenomena differing essentially from those at ordinary altitudes. Some of these our explorations in this elevated region have to a certain extent enabled us to study.

In this paper I will note some of our observations at our three

highest camps made on the Nun Kun mountain massif during our exploration of it in the summer of 1906. Presuming the reader to be familiar with the subject of mountain-sickness, so often described, and also, in general, with the effect of altitude in accelerating the circulation and respiration, these will be referred to only as they are connected with other phenomena.

The Nun Kun mountain group is situated 130 miles east of Srinagar, the capital of Kashmir, in the province of Suru. It is comparatively small and compact, occupying practically a square with a side of eleven miles. The central highest portion of the group is remarkable in several respects, prominent among which are the extreme steepness of its ice-bound peaks, which renders them difficult of access, and the fact that they rise 2000 to 4000 feet, not only above its own lesser peaks, but above all others for scores of miles around, the nearest one that exceeds them in height being Nanga Parbat, 120 miles northwest. East, west, and south, none of the vast multitude of mountains which this massif overlooks approach it in height. It stands alone, a lofty island of rock and ice, towering bold and sharp from an ocean of surrounding peaks.

Although the valleys around it have been for years more or less visited by sportsmen and travellers, and three persons have ascended the lower part of one of its glaciers, its height and inaccessibility rendered its upper portions, up to the time of our expedition, secure from intrusion. The object of the expedition of Mrs. Fanny Bullock Workman and myself in 1906 was the more thorough exploration of this region, especially of the difficult, upper, unvisited portions. A base-camp was established on an arête of the Nun Kun, around which the Shafat glacier descending from it turns; it was located at an altitude of 15,100 feet, about four hundred feet above the ice, and from this camp our work was carried out.

The details of the exploration conducted from here, as well as those of the ascent of the highest part of the massif, I will not mention. Preliminary reconnaissance showed that, for the investigation of the latter, three and probably four snow-camps would be required, on account of the difficulty of its approaches. Preparations for this upward move having been made and part of the necessary kit having been sent ahead, we left Base Camp

352 ALTITUDE EFFECTS ABOVE TWENTY THOUSAND FEET.

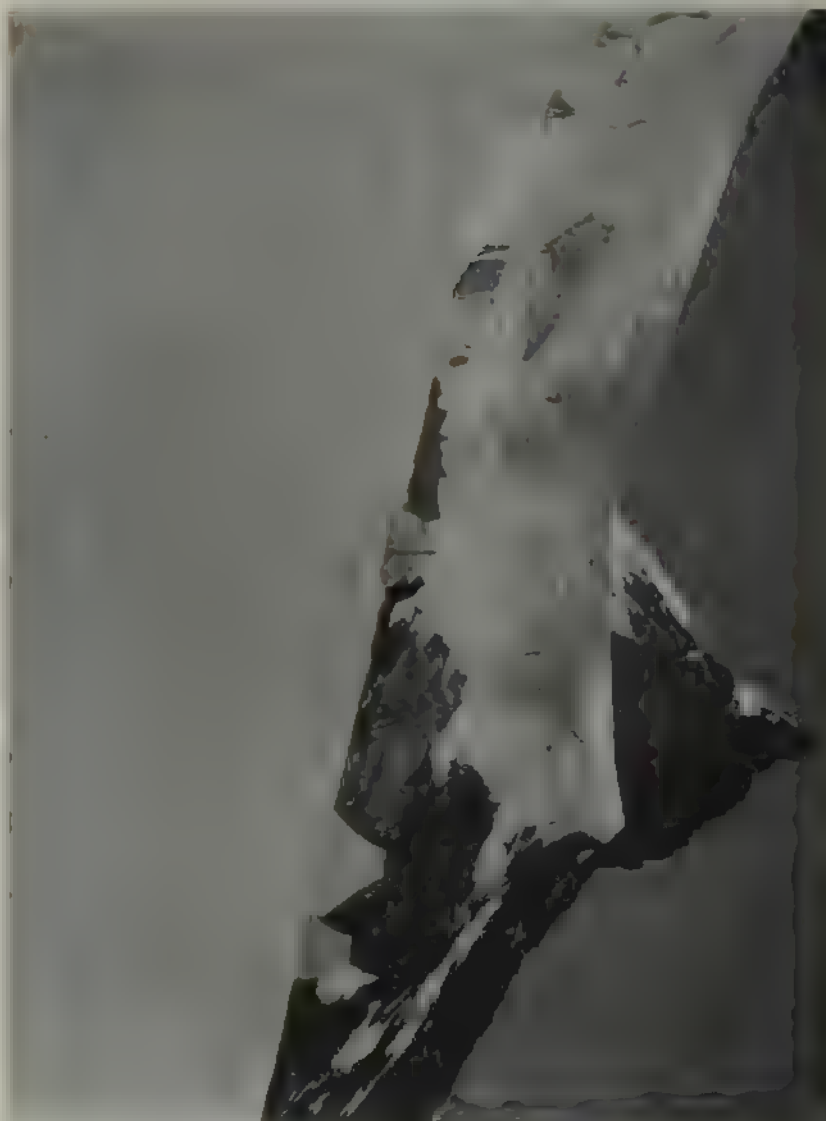
with coolies, July 25, 1906, and ascended the steep broken ice-slopes to a point 17,657 feet in altitude, where we made the first camp on snow-covered ice. The coolies established their camp on screes at the base of a rock-promontory which projected into the ice near by.

The next morning the whole caravan continued upward, and at noon reached a small, sloping snow-surface on a ragged ice-slope at the base of an ice-wall, bounded on its lower side by a large bergschrund. Here the second snow-camp, named White Needle Camp, was pitched at an altitude of 19,900 feet. This was the highest altitude to which we had ever taken coolies, with the exception of two, who went higher with us in 1903. They had marched well, though some of them were mountain-sick at the last, and nearly all complained of headache. This was as high as they were available, as they could not remain over night, there being no rocks to shelter them, no water, and no means to melt snow. They were therefore allowed to return to base-camp, their departure cutting us off from all communication with the lower world.

The minimum temperature was 17° Fahr. On our return we spent another night here, when it was 10° Fahr. The wind blew in gusts the whole night, shaking the tents so that we feared they would be carried away and take us down with them into the bergschrund. This with the altitude, the effects of which all felt decidedly, effectually prevented sleep. Our party here consisted, besides ourselves, of Cyprien Savoye (guide), and six Italian porters. Above this camp only Mummery tents were used and only absolutely necessary food and equipment were carried, but these taxed the powers of all to the utmost.

The next morning we all pushed upward together over the steep face of the ice-wall and traversed a long, sharply inclined curving ice-slope. At an altitude of 21,000 feet we reached the edge of a large snow-basin or amphitheatre — some three miles by one and one-half miles in area — surrounded by seven peaks, the existence of which had never before been suspected. Descending into this we established the third snow-camp, named Camp Italia, at an altitude of 20,632 feet. The minimum temperature on this night was 4° Fahr.

We next moved three miles farther to the upper end of the



WHITE NEEDLE CAMP (9900 FEET)
AT BASE OF AN ICE WALL IN THE MOUNTAIN
From a photograph by Dr. W. H. and M. F. B. WORKMAN.

amphitheatre, where our fourth camp was pitched at the base of the second highest peak of the massif, at an altitude of 21,300 feet. This was named Camp America. The porters could bring only half the necessary kit at one time, so they and the guide descended to Camp Italia for the rest, intending to return in the afternoon. But a dense mist after midday and the softening of the snow by the great heat prevented their return, so that Mrs. Bullock Workman and myself were left to pass the night alone in the almost terrifying silence and loneliness of this untrodden solitude of snow. We did not sleep. As I have found before under similar circumstances, the absolute silence that reigned during the watches of the night, in the absence of sleep, proved almost as nerve-wearing as an excess of noise. In such a situation one has the feeling of having lost touch completely with the material world, and the imagination, uncontrolled by the suggestions of ordinary sounds, runs riot amid fancies and possibilities neither wholly pleasing nor reassuring.

The afternoon was windless and oppressively hot. The sun shone through the drifting mist with a sickly light, but with a heat that sent the mercury in the solar thermometer up to 193° Fahr. at 2 o'clock and to 142° at 3.30 o'clock. The heat was equally unbearable within and without the tents, and all the harder to endure because of the mist, which, while shutting out all view of the world around, shut in the heat, so that it became a palpable entity penetrating to every part of the system with depressing effect. At sunset the temperature fell to freezing, and an hour later to 10° Fahr., reaching a minimum of -4° before morning, a difference of 197° . We spent a second night at this camp, when the thermometer recorded a temperature of -6° Fahr.

I stated the altitude of Camp America as 21,300 feet. This was measured by hypsometric readings compared with simultaneous ones at the lower Government station of Dras, 34 miles distant, where readings were taken for us three times daily during our absence. The same readings calculated by Airy's table, the one used in the meteorological bureaus in England, makes its altitude 21,600 feet. The variation being so great, and Airy's table differing from others in placing sea-level at thirty-

one inches and giving relatively higher altitudes for very low pressures, the results of calculations by it have not been used. If Airy's table can claim greater accuracy than the older tables, then the altitude in question must be regarded as 21,600 feet.

In either case this camp has a practical importance, as I hope presently to show, as representing, I believe, the highest point to which, up to date, tents have been taken and occupied, and the highest measured point at which mountaineers have passed the night. Two parties have recently claimed to have bivouacked without tents in the open at greater altitudes, Mr. Reginald Rankin on his descent from Aconcagua being overtaken by darkness at an elevation he estimates as 22,000 feet, and Dr. Longstaff, with guide and porter, under similar circumstances, having spent a night in the snow at what he thinks was 23,000 feet. From their published accounts it appears that, in neither case, was the altitude claimed determined by any kind of measurement, which throws out these claims without the necessity of further argument. There is no need to emphasize the unreliability of estimates at great altitudes, especially where the persons making them are visiting high mountain regions for the first time, as in the two instances above cited; nor to describe the meteorological conditions existing at the altitude quoted, which render it extremely unlikely that the heights of the points in question were correctly estimated.

Altitude figures should be accepted with reserve, until it is known how they were obtained. Many of the statements which have gone into print as to high altitudes reached are untrustworthy, being based like the above only on estimates, or on what is quite as unreliable, the readings of unchecked aneroids, probably with large index-errors, without comparison with simultaneous readings at measured lower stations, rather than on theodolite measurements or on hypsometric or barometric readings compared with coincident ones at fixed base.

It has been asserted several times within the past year that Mr. W. H. Johnson, in the employ of the Indian Survey, camped in 1865 in the Kiún Lún at an altitude of 22,000 feet. I have been unable to find in Mr. Johnson's account of his work in the Synoptical Vol. VII. of the Indian Survey and in the Journal of the Royal Geographical Society any mention of such

a camp. If any camp which Mr. Johnson thought approached this altitude was made, it must have been on the peak E. 61, the only peak in the region exceeding 22,000 feet, which was measured in 1862 by a survey employee and its height given as 23,890 feet. This measurement was unchecked, and the details of it were so meagre that the survey did not endorse it, expressly stating that for reasons given they considered it too high — as I have been credibly informed, probably a thousand feet or more too high. Any camp, therefore, that Mr. Johnson may have made on this mountain, the altitude of which he would naturally estimate with reference to the assigned height of the mountain itself, would have to be lowered by the same amount, which would bring it in any case below the altitude of our recent highest camps.

In order to place mountaineering on a scientific basis, among other things, the necessity of the measurement of altitudes reached, by one of the methods recognized as fairly reliable, is obvious, since such measurement alone defines with approximate exactness the height at which observed altitude phenomena may occur, and without it observations lose an important part of their value. In this connection I would now call attention to some of the subjective experiences, particularly at night, of the nine Europeans engaged on this occasion, not merely in high climbing, but in carrying loads, making and occupying camps measured at 19,900, 20,632, and 21,300 feet (by Airy's table 20,251, 21,093, and 21,600 feet, respectively).

Only one of the party — a porter — suffered from mountain-sickness. Although complaining of headache and weakness at Camp Italia, he started to go to the highest camp with a light load of instruments, but was unable to keep up with the rest of us and soon fell behind, showing unmistakable signs of this malady. Before reaching an altitude of 21,000 feet, though naturally a strong and healthy man, he collapsed entirely and became helpless. He complained of loss of sensation in his hands. His woollen mittens being drawn off, his fingers were found white and stiff, and, if not already frost-bitten, on the point of becoming so. Vigorous rubbing and pounding of his hands finally restored circulation, when he was sent down to Camp Italia. The fact that his hands, even when protected by

thick woollen mittens, were brought by the cold to the verge of frost-bite, while my own without any covering were comfortably warm, shows how profoundly the circulation and vitality are prostrated by mountain-sickness, and how dangerous it is for one suffering from it to be exposed to the cold of high altitudes.

At White Needle Camp (19,900 feet) and above, three suffered with severe headache, pain in back and lower limbs, especially at night; while three were troubled with cough without discoverable pharyngitis or bronchitis, which disappeared in two cases on descending to the base-camp, but persisted for a week in the third instance. These symptoms did not incapacitate any one, except the porter who was ill, from accomplishing the daily work.

Every one, as was to be expected, felt the effect of altitude on the respiration, though some to a greater extent than others. This, as usual, manifested itself by shortness of breath and panting on slight exertion. In the erect position, when resting, the respiratory disturbance was not so noticeable, being marked only on movement; but at night, on lying down, it became more urgent, being accompanied by a feeling of oppression, for the relief of which a number of deep inspirations were necessary. The frequent repetition of these wearied the respiratory muscles, and even became painful. This constant gasping for breath interfered with sleep, no matter how tired one might be, and if, at last, after a long period of prostrating wakefulness one did doze for a moment, one would immediately start up with frantic efforts to obtain sufficient oxygen to relieve the stifling sensation that threatened to terminate one's existence.

During the five nights at our three highest camps no one obtained more than a few snatches of sleep, and four, of whom I was one, practically none at all. Those nights are not easily forgotten when one lay sleepless on the snow, in the cold and silence and darkness, struggling for breath, and counting the slowly dragging hours with a feeling that the strain could not be endured till daylight. It is scarcely necessary to say that even the strongest could not hold out for long against the depressing influence of loss of sleep, combined with the lowering of vital energy due to the scarcity of oxygen at these high altitudes. We were conscious of a distinct decline in strength on

the last two days, and after six consecutive days of hard work and five sleepless nights every one felt an irresistible desire to relieve the tension by a descent to a lower level.

I have elsewhere (referring to our highest camp in the Chogo Lungma region, at 19,358 feet, where five Europeans were affected in a similar manner during two nights) suggested the possibility that, in attempts on the highest Himalayan summits, where camps would have to be made at from 23,000 to over 27,000 feet, insomnia alone might prevent success.¹ This corroborative experience of nine active mountaineers at camps approximately 550, 1300, and 2000 feet higher than that above mentioned — at all of which respiratory disturbance and insomnia were distinctly more pronounced, being most marked at the highest — appears to me now to justify the opinion that insomnia will be found to be an adverse factor in high mountain work no less formidable than cold, deficiency of oxygen, and weather, and much more so than mountain-sickness, inasmuch as it appears likely to affect a larger number of climbers. This and considerable other experience of ours affords a rather conclusive argument against the idea which has been advocated, that by remaining for a considerable time at high altitudes a mountaineer may become acclimated and better able to withstand altitude effects. The experience of the few who have camped at over 18,000 feet, as well as our own, tends to show the opposite to be true, and that the lowered vitality induced by deficiency of oxygen, insomnia, and cold makes the system increasingly less able to endure the wear and tear incident to climbing at increasing altitude.

Another effect, which we noticed here as elsewhere above 18,000 or 19,000 feet, is that upon the mind. Owing, perhaps, to a general loss of energy and to the disturbance of respiration and circulation caused by even moderate exertion, a mental condition of irresolution and disinclination to effort supervenes. The simplest actions assume formidable proportions, and even photography, which is recognized as of the highest importance, becomes a bugbear, while the ascent of a snow-peak, a really difficult undertaking, at such altitude, looms up as an almost impossible proposition. One has therefore often to bring the will into

¹ See *The Alpine Journal*, August, 1905, p. 14.

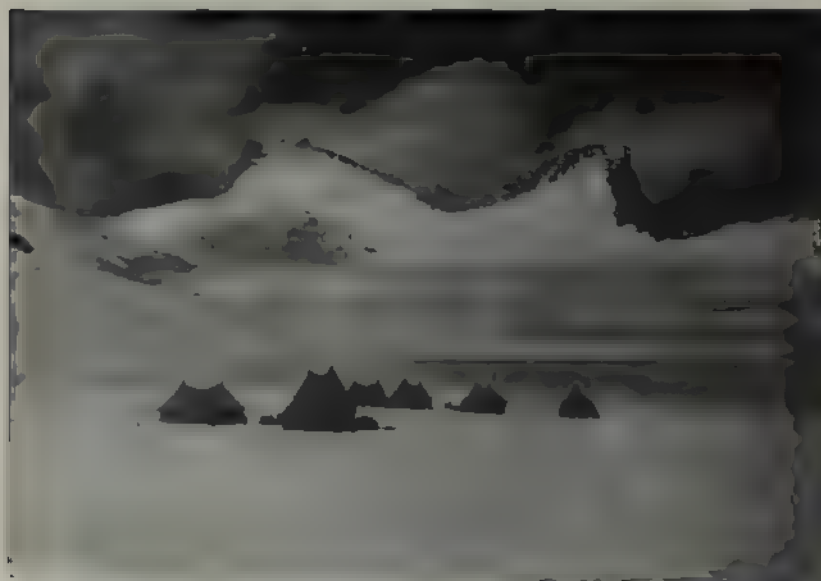
play to its utmost power to force one's self to carry out what has been proposed. Those who are destined to carry the mountaineering-altitude record much higher than it now stands will undoubtedly be persons of strong will and self-control.

Our primus stoves and hypsometer lamps felt the altitude quite as much as ourselves. The alcohol in the lighting-cups of the former would not burn until the cups had been heated by the application of half a dozen burning matches, and the petroleum gas issuing from the burners was only partially consumed when cooking-utensils were placed at the ordinary distance above the latter, the rest escaping in smoky, ill-smelling fumes. To insure complete combustion it was necessary to give the flame its full height, so that the air could have access to it from every point. With this precaution petroleum in a primus stove makes a more efficient fuel and generates a much greater heat at high altitudes than alcohol used in any apparatus I have seen.

The wicks of the hypsometer lamps were also lighted with difficulty, two or three matches in succession being required, and when they were lighted, placing the lamps in the metal jackets promptly extinguished the flame. Having had the same experience previously, we had had the burning-tubes replaced by new ones of double the diameter, but this did not help the matter. The ordinary jacket does not admit sufficient oxygen to insure combustion at high altitudes. The lower half of the jacket, at least, should be made of wire gauze, so as to admit all the air possible.

We found the low temperature, -4° and -6° Fahr., and even that of 17° and 10° Fahr. with strong wind, trying at night. Arctic explorers endure temperatures much lower than these without difficulty, but their work lies near sea-level, where the atmospheric pressure is more than double that at 21,000 feet, and they can encase themselves in furs without suffering from the weight. There the air also contains sufficient oxygen to enable them to breathe freely under any degree of exertion, and to sleep soundly, thus sustaining the bodily heat and vital forces at a normal limit, so that they can offer a maximum power of resistance to cold.

But at high altitudes, where vitality has been lowered by hard work, loss of sleep, and deficient oxygenation, where only a



CAMP AMERICA (2130. FEET) AGAINST SIDE OF SECOND HIGHEST NUN
KUN PEAK

CAMP ITALIA (209. FEET) IN THE NUN KUN AMPHITHEATRE.

From photographs by Dr. W. H. and Mrs. F. B. Workman

closely calculated minimum of clothing and bedding can be carried, an amount really insufficient to protect one against cold. A temperature of zero means a good deal more than it does to the Arctic explorer. All our party, in addition to flannel-lined Mummery tents, with ground-sheets sewn in, were provided with rubber ground-sheets and well-padded eider sleeping-sacks, enclosed in outer ones of camel-hair or army blankets; but these were inadequate to prevent us, even when wearing our thickest clothing besides, from feeling the cold sensibly at night at White Needle Camp and to a much greater degree at the two highest camps. Two thousand feet higher, where the cold would be considerably greater, we should probably have suffered more severely.

Another point of interest is, that the guide and porters were able to carry loads of forty pounds to an altitude of 21,240 feet. The gradients, except that of the ice-wall above White Needle Camp, were not steep, and the last two marches were only about three hours; but to carry loads of forty pounds up inclines of 25° to 35° in snow ankle-deep, at that altitude, requires strength and endurance. How much higher they could have gone, or up how much sharper slopes, I will not venture an opinion. Harvey expressed grave doubts whether they could carry the same loads up much steeper gradients than were encountered, for at altitudes like these, the difficulty of carrying a given load increases enormously with a comparatively slight increase in gradient.

These men were certainly more efficient than coolies, and with their aid we were able to make two camps at altitudes which could not have been reached with coolies. The question as to what height trained mountaineers will be able to carry outfit requires to camping must be left to the future to decide. With the various obstacles to high climbing more accentuated in proportion to altitude, it seems certain that loads will have to be reduced as altitude increases, until a limit will at last be reached where not enough can be carried to support life and protect the mountaineer against cold and weather. That limit is likely, I fancy, to be found considerably below heights at which camps will have to be made to render the highest summits accessible.

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Another point of interest is, that the guide and porters were able to carry loads of forty pounds to an altitude of 21,300 feet. The gradients, except that of the ice-wall above White Needle Camp, were not steep, and the last two marches were only about three hours; but to carry loads of forty pounds up inclines of 25° to 35° in snow ankle-deep, at that altitude, requires strength and endurance. How much higher they could have gone, or up how much sharper slopes, I will not venture an opinion. Savoye expressed grave doubts whether they could carry the same loads up much steeper gradients than were encountered, for at altitudes like these, the difficulty of carrying a given load increases enormously with a comparatively slight increase in gradient.

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Darby Field.

BY WARREN W. HART.

IN the earlier half of the seventeenth century, very little of New Hampshire had been explored. There were a few settlements not far from the coast, but the extent of the great wilderness which stretched away to the north was a matter of conjecture only. Some of the settlers believed that this unknown country contained vast inland seas which would prove of great commercial importance, and it is said that, about 1630, an expedition set out in search of the unknown lakes of Laconia. There were rumors, too, of a wealth of precious stones in the wilds of the north, and the Indians told surprising stories of what might be seen there.

Among the men who aided in exploding these myths, Darby Field took a conspicuous part. Not dismayed by the unbroken forest, or the Indian tribes, then numerous and powerful, he set out in the early summer of 1642, and on the eighteenth day of his journey made the first recorded ascent of Mount Washington.

Singularly enough, not one of the beautiful summits of the range visited by him bears his name; nor has any ravine, valley, pond, river, waterfall, or brook, in the White Mountains proper, been named in his honor. To be sure, one of the peaks of a secondary range, neither visited nor mentioned by him, is called Mount Field; but even this was named for him as a matter of convenience. It was formerly called Mount Lincoln, a name shared by one of the Franconia group, and Sweetser says, apologetically: "In order to *avoid confusion*, it was named in honor of Darby Field."

Little as Field is known among the hills he discovered, he is scarcely better known in their literature. His name is mentioned not infrequently, but so far as his birth, family, character, or indeed any detail relating to his personality is concerned, not the slightest information is presented.

Sweetser simply mentions "the exploratory visits of Field and Vines." Crawford's History credits "Darby Field, of Portsmouth," with the first ascent of Mount Washington. "East of the White Hills" refers to him as an "Irishman;" and Joseph

B. Walker, in an address before the American Forestry Association, called him "A wide-mouthed Irishman." Drake refers to him as "An adventurous Irishman," and says he was one of the earliest settlers of Exeter, N. H. He adds, "The antecedents of this obscure personage are securely hidden behind the mists of more than two centuries."

A glance at these authorities, so barren of information and so nearly identical in the little they do furnish, renders it tolerably certain that they spring from a common source. Nor is it any less certain that Winthrop's Diary is that source. Indeed, several White Mountain books, giving, substantially, the same information as that already quoted, refer to Winthrop as their authority. Willey's History, which is one of these, merely says that "The mountains were first visited by one Darby Field." Spaulding speaks of Field as "An Irishman living about Piscataquack." "The White Hills" refers directly to Winthrop's Diary, and speaks of the first ascent of "Darby Field of Pascataquack." Finally, Frank H. Burt, in "Mount Washington," gives Winthrop as his authority, and credits the first ascent to "An Irishman, Darby Field, of Exeter, N. H."

Since all authorities lead to Winthrop's Diary, we may as well follow and see what is to be found there. Winthrop wrote in his Diary for 1642, "One Darby Field, living about Piscataquack, being accompanied with two Indians, went to the top of the white hill."

Here, then, is the source, and the only source, of the oft repeated statements relating to the first ascent of Mount Washington. Slender as it is, it has quite generally been considered final on the question of who made the first ascent, and the date of that ascent. As we are dealing with the man, rather than his exploits, we will not go into those questions, except to point out that the statements of some authorities, fixing the time of his first ascent as 1632, must be erroneous, as he did not arrive in this country until several years later. So also, Eastman's White Mountain Guide, which places the date of his ascent in 1732, is clearly in error, as he died about 1649. Had he lived until 1732, he would have been more than one hundred and twenty years of age, which is a trifle late in life for a first ascent.

To sum up, then, if we admit that he was "adventurous," and pass by, as immaterial, the unsupported figure of speech, that he was "wide-mouthed," we have the following data: Darby Field was an Irishman who lived at Piscataquack, Portsmouth, or Exeter, and is said to have been one of the earliest settlers of the latter place. To this we may add the statement of Mr. Burt, that Field was a member of the First Church in Exeter, a question which we will examine later.

The first matter to be considered, is Field's place of residence, and since authorities differ on this point, it may be wise to determine whether the conflict is real or only apparent.

Farmer, in his history of New Hampshire, is authority for the statement that Pascataqua was the Indian name for Portsmouth. Belknap concurs in this, as also does Merrill. There is, however, still better authority, for Captain John Smith, in his "Voyages," refers to his visits to Portsmouth harbor in 1614 in the following words: "As you passe the coast still Westward, Accominticus and Passataquack, are two convenient harbors for small barks."

Christopher Levett visited the "Isles of Shoulds" in 1623, and mentioned Portsmouth harbor as follows: "Further to the east I found a great river and a good harbor called Pascattaway."

It is clear, from the above authorities, that Portsmouth was formerly called Piscataquack, although the spelling of the name varies, but it is not clear that Field ever lived in Portsmouth. In fact, it is tolerably certain from the early records that he never resided nearer Portsmouth than Exeter, to which latter place he removed very soon after his arrival in this country. Winthrop, however, is supported by the Indian deed of 1638, which refers to two of the grantees as "Edward Calcord & Darby Field of Piscatoquake."

There is, however, an easy solution of the difficulty. An examination of the records of that period shows that in early times Piscataquack was the name, not of a single settlement, but of a considerable region along the Piscataqua River. Albee says it extended along both sides of the river to its headwaters. This would include Exeter, and thus any misapprehension as to Field's place of residence is cleared away.

It appears from Colonel Pierce's exhaustive work on the Field family, that Darby Field was born in the historic town of Boston, England, about the year 1610. His father, John Field, was born in London in 1579, and married Ellen Hutchinson of Boston, in 1609. If these statements are based on authentic information, they dispose, apparently, of the statement that Field was an Irishman.

Unfortunately Colonel Pierce was obliged to qualify this somewhat. He states that he assumes Darby to have been a brother of Robert Field, and admits that he has been obliged to rely largely upon tradition. It is this slight tinge of uncertainty which makes it necessary for us to consider the probabilities in this connection.

In the first place, it is difficult to understand why Winthrop referred to him as an Irishman, if he were in fact an Englishman. It will be noted, also, that investigation proves the accuracy of other of Winthrop's statements concerning Field, as for instance the fact that he resided about Piscataquack. On the other hand, he evidently had no immediate knowledge of Field, for he refers to him as "One Darby Field," and it is doubtful if he would have used those words had he been, even slightly, acquainted with him. It must be also borne in mind that two and a half centuries ago, means of communication between Boston and Exeter were limited and uncertain. Wheelwright, who settled Exeter about 1638, was obliged to sail to Portsmouth and thence make his way to Exeter overland. Furthermore, the best of feeling did not exist between the two settlements, for a part of the Exeter colony had been driven from Boston during the Antinomian controversy. Taking all these circumstances into consideration, and keeping in mind the nature of Winthrop's information, which was, undoubtedly, hearsay, it must be conceded that the entry in his diary is far from conclusive.

Let us consider the probabilities somewhat farther. It is not claimed by any one that the name "Field" originated in Ireland. Some authorities refer to it as the ancient English name de la Field. Others say it was brought into England by Hubertus de la Field, who emigrated from Alsace in 1069. The latter conclusion seems reasonable, for the name was transplanted to

English soil at a very early date, and has appeared frequently in the English records for several centuries.

The next question, logically, is whether "Field" was a family name in Boston, England; and it seems that it was one of the earliest and most respected in that town, dating back to 1333. The records show that in ancient times Mary Field gave a considerable sum to the parish of Boston, the interest to be given to the poor. In 1544, of seventy-two persons taxed, but one paid a larger sum than Nicholas Field. In 1546 Nicholas Field was mayor of Boston, and in 1575 William Field was mayor.

A further reason for believing Field to have been one of the Boston family is his choice of a home in Exeter. The Rev. John Wheelwright, who formed the settlement there, the Hutchinson family, the Pormort family, Augustine Starr, and many others came either from Boston or from villages immediately adjacent. Under the circumstances it was perfectly natural for Field, if Boston born, to join his old neighbors at Exeter.

Finally, there is the name "Darby," a last and important consideration. This name is quite unusual, but not at all so in Boston. The Darby family held a messuage in Bennington (five miles from Boston) in 1466, and in 1502 Ralph Darby of Bennington sold twenty-seven acres of land to William Gooderyke of Kirkeby. Moreover, William Darby was mayor of Boston in 1570, five years before William Field held the same office. It is, therefore, quite reasonable to assume that John and Ellen (Hutchinson) Field named one of their sons in honor of the Darby family.

These facts render it nearly conclusive that his father's people were English; nor does the claim that he was an Irishman have any better standing from his mother's family. John Hochynson was taxed in Boston, England, in 1523, and it appears from Thompson's History of Boston that the Hutchinson family of Alford was, probably, connected with the Boston family. The Rev. John Wheelwright, the eminent non-conformist, married into this family, and the celebrated Anne Hutchinson, who was banished from Massachusetts with Wheelwright during the Antinomian controversy, was the wife of William Hutchinson, a brother of Mrs. Wheelwright.

There has been some discussion as to the reason Field left

England. The Field Genealogy informs us that John Field signed the Exeter Combination and sent his son Darby to look after his interests here. In referring to Darby Field, the same authority states that he was driven away from England by religious and political persecution, and adds that he escaped from England to Sweden, coming to this country in 1636.

These two statements are so thoroughly inconsistent that it is doubtful if both are true. An examination of the signatures to the Exeter Combinations of 1639 and 1640, as they appear in the History of Exeter, and in Hazard's Historical Collection, fails to reveal the name of John Field. Furthermore, if we are to conclude from the language used that he signed the Combination and later sent his son over, it is clearly an error, for Darby Field settled in Exeter the year before the original Combination was drawn, and was one of the signers.

It is more likely that he was a refugee, for England was in a religious turmoil at the time of his departure, and Boston appears to have been a hotbed of religious persecution. It was in that town that the Rev. John Cotton, the brilliant preacher, so prominent in the early history of our own Boston, who lies in King's Chapel burying-ground, was persecuted as a non-conformist. He was obliged to resign his pastorate and fly to London. There he was concealed for some time, and finally, in 1633, escaped on a vessel bound for this country. It is interesting to note that the trouble arose over the question of kneeling during communion and other equally trifling questions of church discipline.

Mr. Burt, in his admirable work, "Mount Washington," gives Bell's History as his authority for stating that Field was a member of the First Church in Exeter. It seems probable that his signature to the Combination may have given rise to that idea. As a matter of fact, the Combinations were governmental only. Still it may well be that he was a member, for the History of Exeter states that all, or nearly all, adult persons in the settlement were members, and the Combinations recite, "we, brethren of the church of Exeter, . . ."

He was a man of independent convictions, and it is not surprising that he came under the ban of the church at an early age. An incident which occurred after his removal to Oyster

River, near Dover, N. H., in 1644, well illustrates this: A famous divine from Massachusetts was addressing the people of Dover and took occasion to reprove them for departing from the good habits of the Puritans. Field immediately arose and corrected the zealous cleric, saying: "Instead of coming here for religious purposes, the object of our ancestors was to lumber, fish, and trade, and instead of departing from their good example, we have improved on them."

At Oyster River he acquired some property, and was licensed to sell wines. He probably married in Exeter, but there is no record of the family name of his wife. He was the father of five children, several of whom took an active part, in later years, in the affairs of the colonies. Two hundred and sixty-five years after his ascent of Mount Washington, one of his descendants became president of the Appalachian Mountain Club.

It is supposed that Field died in 1649, as it appears from the records that his wife was taxed in 1650. In 1651 Ambrose Gibbons was appointed administrator of his estate.

It is unlikely that we shall ever know just what induced him to take his solitary and hazardous journey through the wilderness. Drake would have us believe he went in search of precious stones; but Drake had even less information than we have before us. It seems probable that he went because he felt the call of the wilderness, a call ever irresistible to him in whose veins flows the restless blood of the explorer. In future years, researches among forgotten records will doubtless bring to light fresh information concerning him and his famous ascent of Mount Washington. Meanwhile, the mountains are themselves the noblest monuments to his memory.

ALPINA.

THE JUBILEE OF THE ALPINE CLUB. The extended report of the brilliant celebration at London last December of the fiftieth anniversary of the founding of the first of Alpine clubs, which appears in the issue of the "Alpine Journal" for February, 1908, renders necessary only a very summary statement in "Alpina."

The festival began with a "general meeting" of the Club on the

evening of Monday the 17th, at the hall of the Society's headquarters at 23 Savile Row, at which the retiring President, the Lord Bishop of Bristol, presented a brilliant and witty address summarizing the history of the Club. This was followed by brief remarks from a few of the eldest members of the Society, among these Professor T. G. Bonney, the oldest living ex-President, and Mr. F. F. Tuckett, once a most famous climber of the High Alps. Beautifully engrossed memorials from some of the Continental clubs were then presented, with appropriate remarks, by the delegates sent for the purpose. One of these was Dr. Von Meck, the President of the Russian Alpine Club, who represented the easternmost of the societies assisting.

On Tuesday afternoon a large attendance crowded the hall to inspect the interesting collection of Alpine pictures, in oil and water-colors chiefly, representing the artistic work of the half century. Tea was served and social intercourse enjoyed, in so far as the "crush" would permit.

The principal event of the celebration was the banquet held that evening in the beautiful hall of Lincoln's Inn, by special permission of the benchers. Some three hundred and fifty, members and guests, were seated at the eleven tables, ten of which were arranged at a right angle with the "high table," at which were seated, on either hand of the President, the special guests of the Club and many of its past officers alternating with them. The delegate of the Appalachian Mountain Club and American Alpine Club was accorded a most honorable seat and invited to respond to one of the toasts of the evening. The banquet itself was exquisite. After the President had opened the post-prandial exercises and offered the healths of "The King," "Queen Alexandra, the Prince and Princess of Wales, and the other members of the Royal Family," he proposed as the "third royal toast," "The Rulers of all lands in which the members of the Alpine Club are made welcome." In this connection a letter was read from Ambassador Bryce, a recent President of the Club, and a note of congratulation through the Ambassador from President Roosevelt, who since the early 80's has been an honorary member of the Alpine Club. It was received with cordial applause. The Chair then offered a toast "To the Alpine Club," which was responded to by the President-Elect, Mr. Hermann Wooley of Manchester, an active explorer among mountains in distant lands, including the Canadian Rockies. Mr. Clinton Dent, a former President and the well-known editor of the *Badminton Mountaineering*, in a witty speech pledged "Our Founders and Early Members," responded to by the venerable Sir Alfred Wills, who in 1858 first climbed the Wetterhorn, and briefly also by the Rev. J. W. Davis, another of the

oldest living members. Then came the turn of that widely travelled exponent of English alpinism, Mr. D. W. Freshfield, who closed his brilliant address with a toast to "The Mountaineering Societies of the World," summoning the delegate from the United States to respond. Another of the older members, Mr. F. Morshead, toasted "Our Visitors," to which the Lord Chief Justice of England, who sat upon the President's left, replied briefly, owing to the lateness of the hour. The final toast, "The Chairman," was proposed by Sir Alexander Kennedy, and brought a final sally of clever wit from that ideal presiding officer. To the stranger the method of announcing the toasts (by a stentorian aid, not a member of the Society) and the mediæval custom of drinking the loving cup were most interesting. In this latter ceremony three stand at once, the one pledging, the one pledged, and each time at the back of the former his next neighbor to defend him from (once possible) assassination!

The last function of the celebration was a brilliant "Conversazione" on Wednesday evening in the equally magnificent banqueting-hall of the Inner Temple. Ladies were present in force, many of them being members of the new alpine society of their sex, formed the evening before in London. Among these was Mrs. Workman, who was starting next day for new explorations with her husband in the Himalayas. At one time during the evening the delegates from this Continent saw gathered within a small radius nearly all the British mountaineers who have visited the Canadian Alps, from Rev. W. S. Green to the latest in date. Mr. Whymper unfortunately was prevented from attending, being in Switzerland at the time.

AMERICAN ALPINE CLUB. The annual meeting of the American Alpine Club was held at the library room of the Geographical Society of Philadelphia on Monday afternoon, December 30. President Fay arrived from London in time to preside at the meeting, and entertained the members with an account of the various exercises attending the celebration of the fiftieth anniversary meeting of the English Alpine Club, which he attended as the Club's delegate. In addition to the routine business transacted, the following resolution, prepared by a Committee consisting of Messrs. Bryant, Bridgman, and Reid, was passed expressing the Club's sense of loss in the death of Professor Angelo Heilprin, the Vice-President of the Club:—

Whereas: The members of the American Alpine Club learned with profound sorrow of the death in New York City, on July 17, 1907, of Vice-President Angelo Heilprin, one of the most active and distinguished members of the Club; and

Whereas: We recognize that it was owing to his initiative and sustained interest

more than to any other one factor that this organization was instituted in the year 1902; and, furthermore, we are constrained to believe that the present influence and prosperity of the Club is due, in a great measure, to the high aims, liberal policy, and efficient standards advocated by him from the outset; and we further recognize, that in his field work in Mexico, Greenland, and Martinique, as recounted in his various publications, he exhibited the greatest enthusiasm and perseverance as a student, scientist, and explorer, and at the same time endeared himself to his associates by his modest demeanor and genial disposition. Therefore be it

Resolved, That the members of the American Alpine Club hereby express their deep sense of loss at the untimely death of our late associate, Professor Angelo Heilprin, the founder of this organization, a sincere and gifted student of nature, and one whose name will always be associated with the early history of this Club.

Resolved, That the Secretary be requested to forward a copy of these resolutions to Professor Heilprin's family.

An informal report was made in relation to the successful dinner tendered to the Duke of the Abruzzi by the Club, at the Hotel Astor, in New York City, on May 28, 1907. On behalf of the Publication Committee reference was made to the issuing of the first number of "Alpina Americana," and the hope was expressed that this would be followed up by the publication during the present year of another number, relating to the Rocky Mountains of Canada. The Secretary read an interesting paper contributed by Dr. William Hunter Workman, entitled "Some Altitude Effects at Camps above Twenty Thousand Feet." The Nominating Committee, previously appointed by the President, consisting of Messrs. Scattergood, Whipple, and Seaver, reported the following nominations of Officers and Councillors, and the same were duly elected to serve for the ensuing three years: President, Mr. John Muir; Vice-Presidents, Professor Charles E. Fay, Mr. Harrington Putnam; Secretary, Mr. Henry G. Bryant, 2013 Walnut Street, Philadelphia; Treasurer, Mr. William S. Vaux, Jr., 807 Bailey Building, Philadelphia; Councillors, Professor Joseph N. LeConte, Rev. Harry P. Nichols, Professor Harry Fielding Reid, Professor A. Lawrence Rotch.

The guest of honor at the annual dinner, which took place the same evening at the Hotel Walton, was the Rt. Hon. James Bryce, former President of the English Alpine Club, who informally addressed the members, giving mountaineering reminiscences and alluding also to the promising outlook for an organization such as ours in this country. Other guests included Admiral George W. Melville, Provost Charles C. Harrison, J. G. Rosengarten, and George Wharton Pepper. Following informal speeches by the President and some of the guests named, a series of lantern slides was shown illustrating the following subjects: "Mount Assiniboine and Vicinity," by George Vaux, Jr.;

"Some Views from the Foot-hills of the Himalayas," by Henry G. Bryant; "Explorations near the Head Waters of the Saskatchewan," by Mrs. Charles Schäffer; "Views of the Himalayas from the Collection obtained by Signor Vittorio Sella," by the President.

DR. AND MRS. WORKMAN. These energetic representatives of alpinism and exploration have been strenuously occupied, since their return from their campaign of 1906 among the Himalayan glaciers, in extending the knowledge of those lofty regions among the people of several nations. Besides the publication of their book, they have been active in the lecture field. Mrs. F. Bullock Workman gave, between September 15 and December 19, over thirty lectures before the leading geographical and alpine societies of Austria and Germany, and ten in England and Scotland. Dr. W. Hunter Workman also read papers on the same subject before the Royal Geographical Society in London and several other English geographical societies. Dr. and Mrs. Workman left England on December 19, and returned to India, and it is possible that next summer, with guides and surveyors, they will make a detailed survey of the Great Hispar glacier and its northern branches on the border of Eastern Turkestan.

NEW ASCENTS IN 1907. With the exception of two notable climbs in India, — the scaling of Trisul (23,406 feet) in the Garwhal Himalaya by Dr. T. G. Longstaff of the English Alpine Club, and that to a point a mere hundred feet below the summit of the northeastern peak of the much-disputed Kabru (24,000 feet), in the Sikkim Himalaya, by two Norwegians, Messrs. Rubenson and Monrad-Aas, — little of exciting interest has been accomplished during the season of 1907 in the way of new ascents. For our own continent the record is unusually meagre. An attempt was made by Professor Coleman and party of the Alpine Club of Canada to make the ascent of Mount Robson, the accredited highest peak of the Canadian Rockies, which was thwarted, as we understand, by continued bad weather. Professor H. C. Parker of the American Alpine Club and Appalachian Mountain Club, with Mr. W. G. Clarke, made what they think to have been the first ascent of Mount Olympus in the Olympic Mountains of the State of Washington, which they found difficult of approach but offering no difficulties in its ascent. An unhappy accident befell Professor Parker at the close of the expedition, which nearly ended the life of this enthusiastic mountaineer. The premature discharge of a firearm that he was handling so shattered his hand as to require the amputation of one of his fingers. Blood poisoning set in, and for a time his life was in the balance.

SAD ACCIDENT IN THE ALPS. A casualty of an unusually sad character followed hard upon the joyful celebration of the jubilee of the Alpine Club, resulting in the death of a most promising young man, a member of that society. At a delightful dinner party given by Sir Henry Bergne, arrangements were made between Mr. Wheeler, the President of the Alpine Club of Canada, and Mr. Frank Bergne, the son of the host, to spend a few days together in winter ascents in Switzerland. Saas Fée was the chosen rendezvous, and they met there on the evening of December 31. On New Year's Day the party made a late start, intending to go as far as the Mischabel hut for the night, and on the day following cross the Ulrichshorn and descend to St. Niklaus. At dusk, while advancing unroped up an irregular crack in a bench of rock, Mr. Bergne, who was last in the line, fell backward and disappeared in the darkness. It is supposed that he was rendered somewhat unstable by the rucksack which he was carrying. No response being returned to the calls of his companions, the fatal result seemed certain. The position of the entire party was becoming very critical, so they were forced to move on without making further investigation. Returning to the spot after a trying night, the condition of the snow was found too dangerous to follow the course of Mr. Bergne's fall; accordingly they returned directly to Saas. A day later a party from Saas found the body at the place expected; its injuries indicated that death had been immediate. This outing was undertaken in part as a joyous celebration of Mr. Bergne's twenty-ninth anniversary, which would have occurred on January 6. He was an expert climber reared in an Alpine Club atmosphere, his father and nearest friends being members. His genial nature won him many friends, and the warmest sympathy goes out to the sadly bereaved members of his family.

Report of the Recording Secretary for 1907.

ON January 1, 1908, the total membership of the Club was 1615, an increase of 14 over the number reported one year ago. The Honorary Members numbered 19,—the Rt. Hon. James Bryce having been added; and the Corresponding Members 53,—Lieutenant George M. Wheeler and Professor Angelo Heilprin having deceased, and Miss Anne Whitney and Mr. Frederick H. Newell having been added. There were 238 (a gain of 5) Life Members and 1305 Annual Members, making

1543 members of the Corporation. During the year 22 members of the Corporation deceased, 64 resigned, and 26 were dropped for non-payment of dues. The new members numbered 137.

There were held during the year nine regular, nine special, and one field meeting, the average attendance being about 300. There were presented at these meetings, besides official reports and accounts of nine excursions, fourteen papers which were illustrated with the lantern. Three meetings were devoted to the Pacific Coast States, two each to Asia and the Alps, one each to Maine, New Hampshire, Florida, Alaska, Norway, Australia, and New Zealand, while one meeting on Alpine photography dealt with the Alps, Alaska, Caucasus, and India. At the Field Meeting there were given twelve addresses, ranging all the way from rocks, trees, and spiders to clouds, kites, and balloons.

The Field Meeting was held at the Summit House, Mount Washington, June 29 to July 6. Accounts of this meeting and of the excursions of the year will be found in the report of the Excursion Committee. This Committee has been increased from seven to nine, and has been divided into three groups of three, each group to serve three years, though not limited to that term.

The Standing Rules have been amended so as to provide for a librarian.

The Snow-shoe Section reëlected its officers early in the year. Since the decease of Mr. W. R. Davis, the Chairman, the Section has been again reorganized, new by-laws being adopted and a new article relating to the Section provided in the Standing Rules of the Council. The membership is 238. Two trips were taken last winter, one to Gorham, N. H., in January, and one to Jackson in February.

The annual social reception was held at Hotel Vendome on Friday evening, February 8, with an attendance of 276. A balance of \$42.90 was paid into the treasury.

One number of APPALACHIA was published, — Volume XI., No. 3, in July.

In the summer appeared the first part of the "Guide to Paths and Camps in the White Mountains." It found a ready sale and proved very useful to climbers. The committee in charge

has been continued, and it is hoped that other parts of the mountains may be covered in subsequent issues.

The influence of the Club has been exerted during the year in favor of the establishment of forest reserves in the White Mountains and southern Appalachians, and for the protection of Niagara Falls and the Yosemite and Hetch-Hetchy valleys.

An interesting exhibit of the semi-public activities of the Club was given at the Sportsman's Show; it subsequently became a part of the New Hampshire exhibit at the Jamestown Exposition.

The year was marked by the first publication of the Bulletin, which is intended to include not only the notices of meetings and excursions and the list of new members, but also the records of the Club and Council, accounts of excursions, and information concerning the Club's work in various departments. It is hoped that the Bulletin will be read by members and arouse in them greater interest in the welfare of the Club.

Respectfully submitted,

ROSEWELL B. LAWRENCE,

Recording Secretary.

Report of the Committee on Library for 1907.

THE classification of the library, the need of which was mentioned in last year's report of the Librarian, has been made possible this year by a special appropriation of \$150. The Committee was fortunate in securing the services of Miss Sara Noyes of Waltham, and we take pleasure in reporting that the library, with the exception of the sets of periodicals and transactions of societies, is now arranged on the shelves according to the new classification. Books relating to the history, description, etc., of a special country, including travels and mountain climbing, are arranged under the number indicating that country. Books on other subjects, such as botany, forestry, geology, camping, the art of mountaineering, etc., are arranged in classes marked by a letter. Guide-books are grouped separately, arranged by countries. A schedule of the classification is posted in the library room. Each book bears a class-mark and an

author-mark, and has a fixed place in the arrangement. This mark is also on the catalogue card. The library has been re-catalogued, mainly by use of the Library of Congress printed cards. The arrangement of the catalogue is similar to that found in most of the libraries in the vicinity, cards being filed alphabetically under author, title, and subject. For the present the cards for the recatalogued portion of the library are found in the two lower trays of the catalogue case. The old catalogue, which indexes articles found in periodicals and transactions, will still be found in the upper trays. The Committee is greatly indebted to Miss Abby L. Sargent, who as Librarian supervised the work of Miss Noyes.

For many years the library has felt the need of a book-plate as a mark of ownership and to contain the names of donors of books. This lack has now been supplied by a book-plate bearing the seal of the Club, accompanied by the necessary lettering in plain type.

Mr. Ritchie has continued his care of the collection of maps. Additional boxes have been bought, and the United States Geological Survey maps have been rearranged by States, with progress maps for indexes.

The expenses of the year are as follows:—

Classification and recataloguing . . .	\$156.20
Book-plates	9.73
Binding	127.35
Books	7.02
	<hr/>
	\$300.30

In addition, \$33.60 was spent for books and charged to the Delia D. Thorndike Fund.

The unusual expenses of the year have left little money for the purchase of books. It is hoped that larger additions may be made during the coming year.

A list of books added otherwise than by exchange is appended.

GARDNER M. JONES,	} <i>Committee.</i>
MARY E. SARGENT,	
SOLON F. WHITNEY,	

Additions to the Library in 1907 other than by Exchange.

DONATIONS.

Butterfly Book. W. J. Holland. Gift of Dept. of Natural History.
Cruise of the Neptune. A. P. Low. Gift of F. A. McInnes.
Guide to the Central Alps, Part I. John Ball. Gift of Longmans,
Green & Co.
Moth Book. W. J. Holland. Gift of Dept. of Natural History.
Shameless Diary of an Explorer. Robert Dunn. Gift of Outing Publish-
ing Co.
Sportswoman in India. Isabel Savory. Gift of E. E. Norton.
Useful Birds and their Protection. E. H. Forbush. Gift of Miss Mary H.
Dyer.

PURCHASED.

Camping. Horace Kephart.
Central Asia. Sven Hedin.
Nearest the Pole. Robert E. Peary.
Royal Atlas. Keith Johnston.

Treasurer's Report for 1907.

The receipts and payments for the year were as follows : —

RECEIPTS.

Cash on hand, January 1, 1907 :	
“ Interest on Thorndike Fund for 1905 and 1906 . .	\$70.60
“ Appropriated to publication of Guide to White Mountains Paths and Camps	153.04
“ Appropriated to publication of Index to APPALACHIA	200.00
“ Prepayment of dues and subscriptions	20.00
“ Unappropriated	648.34
	<hr/> \$1091.98
Permanent Fund :	
Life memberships, 11 at \$50	550.00
Annual Dues :	
From 1147 members at \$4	\$4588.00
Admissions :	
From 125 new members at \$8	1000.00
Rooms :	
From societies and clubs	\$22.50
“ rent of keys	6.00
	<hr/> 28.50

APPALACHIA and other publications :

Sales of Walks and Rides about Boston,	\$63.54	
“ “ Guide to Paths and Camps in White Mountains	320.94	
“ “ APPALACHIA, maps, etc.	40.67	
“ “ Index to APPALACHIA	22.30	
Advertisement in APPALACHIA	10.99	
Payment by American Alpine Club	75.00	
	<hr/>	\$533.44

Department of Topography :

Sale of blue-print maps	9.90	
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Annual Reception :

Profit in 1906	\$20.96	
Profit in 1907	42.90	
	<hr/>	63.86

Interest :

On Permanent Fund, except the Thorndike

Fund	\$360.90	
On Thorndike Fund	35.30	
“ Reserve Fund	118.40	
“ Bank account	52.07	
	<hr/>	566.67

Total unappropriated receipts for 1907	<hr/>	\$6790.37
		<hr/>
		\$8432.35

PAYMENTS.

Permanent Fund :

Life memberships, 11 at \$50	\$550.00	
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Real estate :

Paid to Trustees	\$950.00	
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Rooms :

Rent and care of Club Rooms	\$1500.00	
Lighting	32.07	
Fittings, supplies, and sundries	69.67	
Storage warehouse	21.60	
	<hr/>	1623.34

APPALACHIA and other publications :

APPALACHIA, Vol. XI., No. 3	\$660.05	
Delivery	319.11	
Reprints and delivery	72.76	
Business agent	50.00	
Printing Index to APPALACHIA	257.31	
Delivery of Index	3.84	

Walks and Rides about Boston :

E. M. Bacon, royalty	7.25	
Guide to Paths and Camps in White Mountains	696.53	
	<hr/>	2066.85

TREASURER'S REPORT.

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Library :

Books	\$40.62	
Binding	126.50	
Re-cataloguing and re-arranging	166.78	
	—	\$333.90

Stationery, printing, and postage :

Register, 2000 copies and delivery	\$269.70	
General expenses	725.78	
	—	995.48

Expense of meetings :

Rent of halls	\$122.04	
General expenses	287.44	
	—	409.48

Clerical services :

Payments to clerk		550.00
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Department of Natural History :

Reference books for library	\$7.20	
Membership in New England Federation of Natural History Societies	5.00	
General expenses	7.35	
	—	19.55

Department of Topography :

Expense of blue-print maps		\$3.00
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Department of Art :

Express on Sierra Club albums	\$9.30	
General expenses	2.81	
	—	12.11

Department of Exploration and Forestry :

Exhibit at Sportsman's Show	\$48.76	
General expenses	14.47	
	—	63.23

Department of Improvements :

Work on paths and camps, and expenses		382.23
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Donations :

Express on books to Sierra Club	\$13.92	
Freight on books to Canadian Alpine Club	1.50	
	—	15.42

Total current expenses \$7424.59

Cash on hand December 31, 1907 :

Interest on Thorndike Fund	\$74.40	
Prepayment of dues and subscriptions	30.00	
Cash unappropriated	353.36	
	—	457.76
		<u>\$8432.35</u>

Respectfully submitted,

RUFUS A. BULLOCK,
Treasurer.

RECEIPTS AND EXPENDITURES OF THE CLUB SINCE ITS FORMATION IN 1876.

RECEIPTS.

Year.	MEMBERSHIPS.					Sales of Publications.	Interest.	Field Meetings and Excursions.	Annual Reception.	Donations.	Total.
	Admission Fees.	Yearly Assessments.	Back Assessments.	Advance Assessments.	Total.						
1876-1900* Total	10286.00	33582.00	769.00	320.00	44957.00	7102.54	3141.15	1130.03	224.89	6191.76	67637.37
Average	411.44	1343.28	30.76	12.40	1798.28	284.10	125.65	45.20	8.99	247.67	2705.50

Year.	MEMBERSHIPS.					Excursions.	Annual Reception.	Club Rooms.	Topography.	Real estate.	Donations.	Total.
	Admission.	Dues.	Life Memberships.	Total.								
				Publications.	Interest.							
1901	710.00	2691.00	480.00	3881.00	266.59	321.74	9.40	39.58	168.25	....	760.27	5446.83
1902	865.00	2919.00	570.00	4354.00	203.17	355.61	50.65	96.00	154.25	27.73	64.15	5341.56
1903	1095.00	3028.00	1170.00	5293.00	398.42	389.59	150.00	45.51	141.75	8.25	22.23	6448.75
1904	1039.00	4178.00	550.00	5767.00	615.80	452.99	....	43.26	26.00	....	116.50	7021.55
1905	920.00	4460.00	150.00	5530.00	426.50	483.30	100.00	15.35	50.88	1.25	4.00	6621.28
1906	1288.00	4484.00	250.00	6022.00	386.39	522.33	200.00	20.96	26.00	130.24	61.50	7369.42
1907	1000.00	4588.00	550.00	6138.00	533.44	566.67	....	42.90	28.50	9.90	....	7319.41
Total	6917.00	26348.00	3720.00	36865.00	2840.31	3092.23	510.05	243.56	595.63	177.37	1028.65	45568.80

* From the original table for twenty-five years (1876-1900); see APPALACHIA, Vol. X., page 66.

EXPENDITURES.

Year.	Appalachia and Publications.	Club Rooms.	Stationery, Printing, and Postage.	Clerical expenses.	Library.	Expense of Meetings.	Improvements and Explorations.	Department of Topography.	Natural History and Art.	Donations.	Permanent Fund.	Reserve Fund.	Total.
1876-1900	21434.30	11259.09	9214.09	3283.85	1977.95	2373.10	4726.09	1498.41	1674.11	366.52	6923.00	1633.74	66415.20
Total	857.37	450.36	368.56	131.35	79.12	94.92	189.04	59.93	66.96	14.66	276.92	67.35	2656.61
Average													

Year.	Publications.	Rooms.	Stationery, Printing, and Postage.	Clerical expenses.	Library.	Expense of Meetings.	Improvements.	Topography.	Exploration and Forestry.	Natural History and Art.	Real estate.	Donations.	Total.	Permanent Fund.	Reserve Fund.	Total.
1901	1506.89	1325.97	578.51	250.00	91.73	301.63	529.91	...	62.16	81.72	338.31	40.00	5106.73	490.00	....	5586.73
1902	901.19	1648.81	684.13	287.00	155.58	296.75	284.49	34.25	27.75	28.10	298.88	50.00	4696.93	795.00	257.22	5759.15
1903	1130.55	1620.68	803.73	287.00	199.26	247.91	258.94	14.50	15.00	53.00	202.51	100.00	4933.08	1170.00	517.84	6620.92
1904	1615.14	1673.61	1032.37	373.00	88.79	346.98	579.52	20.00	7.11	...	363.21	250.00	6349.73	550.00	....	6899.73
1905	1596.97	1693.68	851.55	420.00	62.13	341.11	231.51	37.00	47.15	9.50	662.82	...	5953.42	150.00	400.00	6503.42
1906	988.50	1696.02	941.81	475.90	100.55	331.30	537.36	50.95	72.99	16.32	1221.71	...	6433.41	250.00	305.26	6988.67
1907	2066.85	1623.34	995.48	550.00	333.90	409.48	382.23	3.00	63.23	31.66	950.00	15.42	7424.59	550.00	....	7974.59
Total	9806.09	11282.11	5887.58	2642.90	1031.94	2275.06	2803.96	159.70	295.39	220.30	4037.44	455.42	40897.89	3945.00	1490.32	46333.21

Report of Trustees of the Permanent and Reserve Funds for the Year 1907.

PERMANENT FUND. — PRINCIPAL.

1907.

Jan. 1.	Amount on hand from last report	\$10,318.95
	Amount received from R. A. Bullock, Treas., for Life Memberships :	
"	16. T. Weeks	\$50.00
"	25. Miss Bessie Cushing Reed	50.00
"	25. Robert Walcott	50.00
"	26. Charles H. Porter	50.00
Mar. 2.	H. C. Fabyan	50.00
"	2. Miss Anna M. Whiting	50.00
"	5. Isaac Van Horn	50.00
Apr. 25.	Albert A. Gleason	50.00
"	26. James A. McKibben	50.00
May 28.	Miss Minnie Estelle Holt	50.00
Dec. 28.	Arthur Y. Lovett	50.00
		\$550.00
	Total Principal on hand Jan. 1, 1908	\$10,868.95

PERMANENT FUND. — INTEREST.

1908.

Jan. 1.	Suffolk Savings Bank : 12 months, to Oct., 1907	\$45.45
"	Medford Savings Bank : 12 months, to Nov., 1907	26.77
"	Lexington Savings Bank : 12 months, to Oct., 1907	48.06
"	Eliot Five Cents Savings Bank : 12 months, to Oct., 1907	30.34
"	Franklin Savings Bank : 12 months, to Aug., 1907	40.66
"	Boston Five Cents Savings Bank : 12 months, to Oct., 1907	41.82
"	Institution for Savings, Roxbury : 12 months, to Oct., 1907	35.30
"	Canton Institution for Savings : 12 months, to Oct., 1907	51.42
"	Warren Institution for Savings : 12 months, to Oct., 1907	35.72
"	North End Savings Bank : 12 months, to July, 1907	40.66
		<u>\$396.20</u>

TRUSTEES OF PERMANENT AND RESERVE FUNDS. 381

1907.

Nov. 11. Paid R. A. Bullock, Treas., as per vote of Council, June 25, accrued interest during year	<u><u>\$396.20</u></u>
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PERMANENT FUND.

Dec. 31. Total Principal on hand	\$10,868.95
Deposited as follows : —	
Suffolk Savings Bank, Book No. 100,753 .	\$967.20
Medford Savings Bank, Book No. 14,915 .	1012.67
Lexington Savings Bank, Book No. 1921 .	1318.82
Eliot Five Cents Savings Bank, Book No. 32,233	947.65
Franklin Savings Bank, Book No. 70,143 .	1115.65
Boston Five Cents Savings Bank, Book No. 425,754	1147.01
Institution for Savings, Roxbury, Book No. 80,803	1000.00
Canton Institution for Savings, Book No. 9015	1324.67
Warren Institution for Savings, Book No. 76,456	920.39
North End Savings Bank, Book No. 26,345	1114.89
	<u>—————</u> <u><u>\$10,868.95</u></u>

RESERVE FUND. — PRINCIPAL.

Jan. 1. Amount on hand from last report	<u>\$3174.80</u>
Total Reserve Fund on hand Jan. 1, 1908	\$3174.80

RESERVE FUND. — INTEREST.

Dec. 31. Boston Five Cents Savings Bank : 12 months, to Oct., 1907	\$57.50
Eliot Five Cents Savings Bank : 12 months, to Oct., 1907	41.56
Canton Institution for Savings : 12 months, to Oct., 1907	19.34
	<u>—————</u>
Interest accrued during year	<u><u>\$118.40</u></u>
Oct. 31. Paid R. A. Bullock, Treas., as per vote of Council, June 25	<u><u>\$118.40</u></u>

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Total Reserve Fund on hand Jan. 1, 1908	\$3174.80
Deposited as follows : —	
Boston Five Cents Savings Bank, Book No.	
229,173	\$1458.82
Canton Institution for Savings, Book No.	
10,793	575.78
Eliot Five Cents Savings Bank, Book No.	
46,187	1140.20
	<u> </u> \$3174.80
	<u> </u>

1908.	
Jan. 1. Total Permanent Fund	\$10,868.95
“ “ Reserve Fund	3174.80
“ “ in hands of Trustees	<u> </u> \$14,043.75
ISAAC Y. CHUBBUCK, } Trustees of the	
REST F. CURTIS, } Permanent and	
CHARLES H. FRENCH, } Reserve Funds.	

The Committee appointed to examine the accounts of the Appalachian Mountain Club for the year ending December 31, 1907, reports as follows : —

We have examined the various accounts, compared them with the vouchers shown, and believe them to be correct, with cash and securities on hand as stated below : —

Treasurer	\$457.76
Trustees of Permanent and Reserve Funds	14,043.75
Trustees of Real Estate (deficiency)	50.00
Manager of Three Mile Island	
Committee on Field Meetings and Excursions	279.46
Snow-shoe Section	35.27
EPHRAIM HARRINGTON, } Auditing Committee.	
W. O. WITHERELL, }	
HENRY A. JENKS. }	

Boston, January 3, 1908.

Report of the Trustees of Real Estate for 1907.

IN conjunction with the Councillor of Exploration and Forestry the fire-lanes upon the Carlisle Pines Reservation have been cleared and about half the sprouts cut back, so as to give protection against fire and opportunity for the growth of the young pines, all at an expense of \$37.52.

The litigation relative to the dam erected by the Berlin Electric Light Company near the Lead Mine Bridge Reservation is unfinished. The evidence has been completed, and it is expected that arguments will be made soon. If Mr. McMillan shall pre-

vail in securing the removal of the dam, the Reservation of the Club will receive a like benefit.

The lumbering upon the slopes of the northern peaks of the Presidential Range has continued, and will undoubtedly go forward to some extent this winter. The paths in this region have been seriously injured, especially the Valley-way to the Madison Spring Hut. So far we have been able to protect the surroundings of Glen Ellis Falls and of Crystal Cascade; and if Congress shall act favorably this session upon the White Mountains Reservation, the beauty of these falls will be preserved. In coöperation with the Councillor of Exploration and Forestry we have made certain recommendations to the Forest Service of the United States relative to some areas which should be taken because of their scenic beauties. The officials of the Forest Service were in full accord with us in this respect; and if their recommendations shall be carried into effect, the Valley-way will be protected; and also the ravines of the castles and cascades, Tuckerman's Ravine, Hermit Lake, as also the Thoreau Falls region in the Pemigewasset Forest.

The changes made in the Madison Spring Hut appear to have given much satisfaction, though it is possible it may be necessary to take some measures for the removal of the dampness which, it seems, has appeared occasionally in the new room. Probably, also, it will be necessary to furnish a better stove in the men's room. Very many of the bad conditions which surrounded the Hut before the change have been removed, though the whole of the dump heap has not yet been displaced. The Hut again has been locked securely, as last winter, and notices have been placed upon it. No one disturbed it last winter. The keys have been left in the Ravine House, and notice has been given in the vicinity that any responsible person wishing to use the Hut can obtain the keys from Mr. Watson.

An agreement was made June 5, 1907, for one year with the Coös Telephone Company for the connection of the Hut with the telephone system of New England. Our line extends from the Ravine House in Randolph to the Hut, and together with the Ravine House switch was constructed at the cost of the Club and belongs to it,—the Coös Telephone Company furnishing the exchange facilities, and also a set of telephones at a rental

of five dollars a year. Under the agreement our charges for the use of this line between the Ravine House and the Hut belong to the Club; and if a message goes from the Hut beyond the Ravine House, the Company charge also is collected by the Club and accounted for to the Company; but if the message comes from some place other than the Ravine House, collection of our charge is made by the Company and is accounted for to the Club. Some immaterial modifications were made in this agreement November 4. We were in doubt whether the telephone instrument should be kept in the Hut through the winter; but upon consultation with the Company, we received their advice that it is not necessary to remove it, and therefore it has been left there.

The line was built at a cost of \$197.89, by Mr. Austin W. Brooks, our care-keeper in charge of the Hut. Unfortunately, a week's delay was caused by bad weather during the last of June, and also because of the failure of people, who had promised to work, to keep their promise. Mr. Brooks is entitled to great credit for his zeal in the matter, even working holidays. The line was finished July 7, and was found to work satisfactorily, except for some buzzing in the receiver which was caused by branches of trees touching the wire. These branches were cut out and the buzzing ceased. A criticism has been made that some of the poles are a little slender; but inasmuch as the wire is detached during the winter, there will not be a strain upon the poles during the bad weather of that season. In the pressure of getting the line in rapidly, it crosses the Valley-way more than it should, and this will be changed in the spring. In some places also the wire should run higher. The receipts from the telephone by the care-keeper come to \$7.60. Some portion of this sum must be accounted for to the Coös Telephone Company; and also it is probable some payments will be made to us from that Company. The receipts for the use of the Hut by 469 persons come to \$231.60, for cards and paper to \$20.99, and for guide-books to \$6. The Hut was supplied with new blankets at a cost of \$41, and the services of the keeper cost \$136.70.

Upon the Joseph Story Fay Reservation the boulder path, along the east side of the Reservation, has been graded, vistas have been cleared, fences have been repaired, and new signs have been put up in place of those which were broken or stolen. The

balsam firs have not been mutilated. The rustic entrance mentioned in our last report has not been built, but probably will be during the coming year.

A week in November was spent in the Rhododendron Cottage in Fitzwilliam by several members of the Club; and the time was occupied in the burning of the treetops and other rubbish, which had been left around about the rhododendrons by the lumbermen, in their operations previous to the purchase of the property by Miss Ware. Much of the danger from fire has been removed, though a great deal yet remains to be done before the Reservation is amply protected. One of the barns has been removed, the woodshed has been repaired, four bedrooms have been put into the attic of the cottage, dormer windows have been cut, a wood furnace has been provided, new flues have been built, very much furniture has been put into the cottage, and it is now suitable for comfortable occupancy during the whole year. As soon as possible a new shelter should be provided for the spring. The increasing use of the cottage shows that it is appreciated by members of the Club. The receipts last year were \$66; the cottage was occupied for two weeks at Christmas, and has been engaged for several weeks this year.

Notices claiming the building upon the summit of Mount Kearsarge have been placed upon it this year, as in the past, in order to protect the rights of the Club. No lumbering has yet begun in the vicinity. A hearing relative to the ownership of the summit took place in North Conway, of which notice was served upon the Treasurer of the Club, and the Club was represented at the hearing by one of our number.

No tenant has been found for the house upon the Farrar Reservation, and it is probable it will fall during the winter.

The lease to Mr. William S. Moulton of Hollis, of the Pleasant Point Reservation, will expire March 1, 1908, and we then shall plan its development and use.

The report of the management of the reservation on Three Mile Island is herewith appended.

For the Trustees,

HARVEY N. SHEPARD,

Chairman.

Report on Three Mile Island for 1907.

TO THE TRUSTEES OF REAL ESTATE: Although an attempt was made early in the year to secure new management for the camp, the attempt was successful only for the months of July, August, and September, which, however, are the months when the serious work of the camp is done. During that period the camp was well managed by Mr. Melville S. Munro, Instructor in Electricity at Tufts College, assisted by Mrs. Parker B. Field.

The management was satisfactory to those who attended; but probably because there was a change, members did not come in their usual numbers. The attendance during the summer months was only about 69 per cent of that of the preceding year. The receipts for board and guest fees were 68½ per cent of the amount in 1906, — nearly the same percentage as the attendance. The cost of supplies, however, including besides food all other supplies, such as fuel, ice, hardware, stationery, etc., was 85 per cent of the amount in 1906. Moreover, the camp lost \$39 on the launch, whereas in 1906 a profit of \$85 was made. These three influences, viz. the diminished attendance, the loss on the launch, and the greater cost of provisions, combined to make the season financially unsuccessful. There was a deficit of about \$250, which was cancelled by contributions from eleven members.

Another year the price of board must be raised. It is estimated that \$1 per week, — \$10 instead of \$9, — with some similar increase in the charge per day and in the guest fees, will produce revenue enough to enable the camp to be run successfully, and without lowering the standard. It is sincerely to be hoped that next year the attendance will be larger, so that a small surplus may be available for repairs, maintenance, and possible necessary improvements.

No improvements have been made the past year, but next year some money must be spent upon the large float; and if the lake is again very low, a considerable sum should be expended in blasting rocks and improving and extending the wharfage for boats and canoes. Three tent floors were built by members, and one rowboat was bought for the Club. No forestry work was done.

The camp was open January 26 to February 4, May 29 to June 2, and July 6 to September 6. During the summer season those attending numbered 165, — 73 less than in 1906, and 22 less than in 1905. The largest number present at one time was 68, including the help, — 6 less than in 1906. The total number of different persons visiting

the camp during the year was 175, — 97 less than in 1906. Many of the usual excursions were enjoyed during the summer, but no new ones were tried.

Respectfully submitted,

ROSEWELL B. LAWRENCE,

For the Committee in Charge.

Reports of the Councillors for the Autumn of 1907.

Natural History.

By J. H. EMERTON.

EXPLORATION of the Club's Reservations has been continued at Three Mile Island, and at the Rhododendron Reservation, in Fitzwilliam. The list of flowering plants of Three Mile Island, made by Mr. A. S. Pease, in 1903, has been revised by Mr. Pease, and completed to May, 1907. It includes 209 native species, to which three have been added the past summer. In connection with my observations on spiders at the island, many insects have been collected. The Coleoptera have been examined by Mr. Frederick Blanchard, and include 65 species. The Neuroptera were sent to Professor J. G. Needham, who finds eight species, several of them rare and interesting to specialists. The five species of land shells have been identified by Mr. C. W. Johnson.

Two parties of members visited Fitzwilliam from May 20 to 30, and from July 10 to 24. Miss Harriet Richards has made a list of birds observed in May, — thirty-six species on the Reservation, and fifteen others in other parts of Fitzwilliam. Mr. Frederick Blanchard spent several days collecting in the Reservation and examined all the collections of Coleoptera, amounting to 169 species. I collected eighty species of spiders, among which were three new ones. The Rhododendrons bloomed late, beginning about July 10, and a thousand flowers were open on July 24.

There have been two Natural History meetings at the Club rooms during the year, on February 11 and October 17. These have brought together each time about twenty persons, specially interested in the Natural History work of the Club.

During the week of March 11 to 16, there were three exhibitions at the Club rooms: (1) a general collection of common spiders and the spiders of Three Mile Island; (2) the Club's collection of Ferns, that had not been shown since the Club occupied its present rooms; and (3) the plants of Three Mile Island. On December 3 and 4, the plants of Three Mile Island were again exhibited, with some from Fitzwilliam, and on December 5 and 6, the plants of Mount Washington. An Exhibition of Insects was held at the Club rooms, by the Cambridge Entomological Club, November 20 to 23.

At the excursion to Jackson, N. H., over February 22, after several warm days, many insects and spiders were observed on the snow, among them the wingless crane-fly, *Chionea valga*. These specimens served for new descriptions and figures of this imperfectly known insect, which were published in "Psyche" for April, 1907.

At the Field Meeting on Mount Washington July 1 to 8, owing to the late season, an unusual number of alpine plants were found in bloom and specimens of forty species pressed for the Club's collection. The list of alpine plants prepared by members of the Club in 1901 was revised and printed in "Among the Clouds." The collection of Mount Washington plants made by the Endicott family in several visits was exhibited at this meeting, mounted upon cards and covered with celluloid, so as to be safely packed and handled. The Club's collection of Mount Washington lichens and mosses was also exhibited.

The alpine spiders, which had just matured, were present in enormous numbers all over the top of the range, and there were found both males and females of two species which had before been known by one sex only.

The last days of the meeting were warm and calm, and insects of all kinds came up to the summit by thousands from the valleys and rested on fences, windows, and walls of the house, and were captured by members in large numbers.

During the meeting experiments were carried on by Mr. S. P. Furguson to find out the influence of the mountain on the air around and over it. Recording instruments were placed in one of the houses on the summit, and similar instruments

sent up to the same height by kites from the neighborhood of the Twin Mountain House.

In order to provide more opportunities for observation of the plants and animals of the country around Boston, the Councillor carried on short walks on Saturday afternoons in the spring and fall, with an average attendance of eight persons, and of thirty-six different persons during the season.

The Club's collection has been carefully looked over during the year and, after consultation with persons interested, a number of specimens thought to be of no use to the Club have been thrown away or returned to their donor. This leaves room for the additions that have been made of mountain plants or those from the Club's reservations.

Reports of the Councillors for the Autumn of 1907.

Topography.

BY RICHARD A. HALE.

THE Councillor feels in presenting his annual report that lack of time and personal attention has prevented the accomplishment of much that has been desired. He has had to depend, therefore, on others who have had greater opportunities to carry out details and to whom credit should be given.

Mr. Louis F. Cutter, a former Councillor of Topography, has had an opportunity this season to continue his excellent work on his map of the Northern Slopes, and his report is herewith appended. The blue-print, with the black lines which accompanied his report, shows the large amount of work accomplished by Mr. Cutter in the time at his disposal. The new map which will be issued, probably the coming season, will be a valuable addition to the Club's publications. He writes as follows:—

“ You will remember that last spring we planned to get out a new map of the northern part of the Great Range, to be issued with the Guide-book next year, and to take the place of the blue-print ‘ Map of Northern Slopes of Madison, Adams, and Jefferson,’ which was originally issued by the Department of Topography in 1898, and which has been revised from time to time since then. The principal reason for hav-

ing a new map was (and is) the worn condition of the old tracing, which will not now give good and clear prints; but it seemed desirable also to include more territory than was shown on the old map, and to make certain other changes. It was proposed to make the new map take in the summit of Mount Washington on the south, the Pond of Safety and Ice Gulch on the north, the Glen House on the east, and Boy Mountain on the west. The parts that could not be shown from original surveys were to be filled in from the United States Geological Survey maps. I undertook to extend my survey as much as I could, so that less of the map should be dependent on the Geological Survey, which is sometimes inaccurate in detail; and I planned also to improve my survey in the area already covered by me, so that that part of the map should be more correct and more up to date in the matter of paths and roads.

“As it turned out, nearly all the work that I accomplished was within the area covered by my former work, and very little was done in the way of extending the survey. In the surveying I used the Gannett traversing plane-table with compass-sight alidade belonging to the Department of Topography, and a compass with folding sights borrowed from the Department of Exploration and Forestry. Distances were measured with the front wheel, fork, and handle-bar of a bicycle furnished with a cyclometer reading to $\frac{1}{100}$ mile. Altitudes were measured with an aneroid barometer.

“With the plane-table I occupied three new stations, and reoccupied two stations that were occupied by me in 1896. Six signals were erected. The plane-table work was not very effectual, as I had to leave Randolph before I had got the full benefit of the work done. The principal work accomplished was the traversing of paths and roads. 18.21 miles of paths and roads were traversed with wheel and compass, and 13.57 miles of paths, roads, and railroad were measured without compass bearings. In the traversing, the compass was generally set up on a photographer's tripod, so that fairly accurate readings could be taken. On the enclosed blue-print are roughly sketched in black the positions occupied with the plane-table, and the portions of paths and roads traversed and measured.

“I should have said that the plane-table was not used as a traversing instrument, but was used in the same manner as a full-sized plane-table, for graphical triangulation. The compass attached to the plane-table was used only for approximate orientation, and was not relied on for final orientation.

“About 235 aneroid readings were taken, but as they are not yet worked up, I cannot give you the number of new elevations found,

many of the readings having been taken at points of known elevation, and more than one reading having been taken at many of the new points.

“I propose to draw the new map on tracing-cloth on a scale of 1:20,000. From the tracing, blue-prints can be made direct for wall maps, etc. For pocket use, and for the Guide-book, I propose to reduce the scale by photography to 1:40,000, or possibly 1:45,000, which will give a sheet about the same size as the present blue-print. The contour interval will be 100 feet.

“The survey is my own enterprise, begun in 1885, before I was a member of the Club, and has been carried on without expense to the society. The club instruments have been used in the field-work connected with the survey. The map is issued by the Department of Topography from its appropriation, and the prints are sold for the benefit of the Club. The expense of the new map will probably exceed the appropriation of \$30, which was made for this purpose. The net profit on the maps sold during the year is \$9.90. As in former years, we are indebted to Mr. Watson, of the Ravine House, for undertaking the sale of the maps without pecuniary profit to himself. A few copies are at the Club rooms for sale, and may be used until the new maps are issued.”

The report of Mr. Chamberlain, showing his work for the year, is presented. The combination among the elements of stormy weather prevented the completion of much that was desirable. He says:—

“In reply to your request I submit this statement of topographic work done in 1907.

“I have made pacing surveys of thirty-two of the Outings, and have given blue-print maps thereof to about 360 different persons. In connection with the Mount Washington field meeting and the Dublin and Holderness excursions I made twelve similar maps and gave copies to all the participants. But nearly all the really important work I have undertaken has proved a failure owing to bad weather.

“I have before called attention to the many interesting little, and little known, mountains between Alton Bay and the Massachusetts line. Having determined their position, I spent three days in May at what appears to be the highest of them, Parker Mountain, on Blue Hill, in Strafford, hoping to use it in connection with Gunstock and Copple Crown in studying the hills lying within that triangle. But rain and fog prevented any results beyond mapping the path to the summit. I

attempted to determine the altitudes of some of the Blue Hills by vertical angles with a declinometer, from the railroad track at Rochester. My results are Parker Mountain, 1430 ; Blue Job, 1340 ; Hussey Mountain, 1300 feet above sea, subject to an error of perhaps twenty-five feet. I was surprised, for Blue Job always appeared to me to be the highest.

“During the Labor Day excursion at Dublin, I hoped to add something to my panorama from Monadnock. The day devoted to that mountain was hazy, and I accomplished little. Small blue-prints of the Monadnock panorama have been given to some members for confidential use, but the work is far from complete. In October, after a long wait for clear weather, I went to Monadnock again and spent three days on the mountain, in haze, fog, and rain, with no results. Equal non-success attended a visit to Uncanoonuc Mountain which I expected to use in connection with Monadnock.

“At the July field meeting I hoped to do something toward the panorama of Mount Washington, and for nine days waited there for the clouds to roll by. I accomplished little beyond a rough sketch around the circle of the nearer objects, made piecemeal in the rifts of the fog.

“Some years ago, Mr. Frederic Endicott called my attention to the erroneous position of Mount Bigelow as shown on the panorama in APPALACHIA, Vol. II. Mr. Endicott says: ‘The name Bigelow is placed about 4° too far to the right, over a peak between Owl’s Head and Black Mountain. A very clear sunrise in July, 1900, did not show any such peak either to the eye or in some half-dozen photographs, although it was only about 10° from the sun and the horizon in that direction unclouded.’ After careful watching for many days, Mr. Endicott called me to see Bigelow. Before I could set up my instrument the mountain faded from view, and I took the azimuth of the point from which it had vanished as near as I could. Subsequent study has convinced me it was Bigelow. This mountain is shown all along the horizon for 12° by the different charts, none of them near the right place. Similar remarks apply to many other objects.

“Besides the partial profile in APPALACHIA, I had four complete panoramas published by different parties. I also had my own private guide-book. This consisted of a list of about 250 objects to be looked for, with their azimuths which I had computed or otherwise obtained, and their distances, and some rough sketches made on previous visits. Being unable to see anything, I devoted the time to a careful study and comparison of the various charts with each other and with my private guide-book. I concluded I could make as good a panorama as any of them.

I have made some progress in drawing one, uniform with my Massachusetts panorama.

"I had made much preparation for work on Mount Prospect in connection with the Labor Day excursion to Holderness, hoping to solve certain questions of the topography to the north and west. But erroneous maps (which I corrected on the spot) led to delay of the party, and just as we reached the summit of Prospect a rainstorm began and nothing could be seen.

"In December, 1906, I joined the forestry party at Fitzwilliam for the purpose of mapping the Rhododendron Reservation; but a heavy storm prevented anything more than an outline plan. In November, at the request of the Chairman of the Trustees of Real Estate, I went with the forestry party, and explored the interior of the Reservation, and am now constructing a map of it."

The new Guide-book issued by the Committee is familiar to most of our members and needs no special comment. The Councillor of Topography would be very remiss, however, if he did not endeavor to impress upon the Club the faithful and untiring labors of Messrs. Perkins, Larrabee, and Hart, who devoted so many evenings to the material which appears in final form in this book. The various points were taken up in detail and discussed and rewritten until a result satisfactory to all the members was arrived at. The Councillor's actual share in the work was insignificant, and for this reason he feels perfectly free to comment on these results. The maps for the book were supplied by Mr. Cutter.

The results of kindred work by others than Club members may very properly find recognition in the report of this department. Chief among these must be considered the labors of the United States Geological Survey. In New Hampshire, during 1907, lines of precise levels have been run starting from Portland, Maine, along the line of Maine Central Railroad and highways to the state line, thence across the State of New Hampshire via Lake Winnipiseogee, to South Newbury, Vermont. These levels have been extended through the following quadrangles: Benton, Compton, Ossipee, Rumney, Silver Lake, Squam Lake, Lake Winnipiseogee, and Woodsville. Permanent benches prominently marked with aluminum tablets have been established in all quadrangles. The list of benches for

both Maine and New Hampshire, together with the actual elevation above sea-level, is on file at the Club rooms for reference.

The benches can be of much practical value to our members in being used in the construction of local maps with contours. If one is spending a short vacation in the country, a fairly accurate map can be constructed with a pocket compass and pacing, for traversing the roads, etc., and a pocket reflecting level and cloth level rod which can be pinned to a fence-rail and used to great advantage. If no rod is available, the height of the observer's eyes above the ground will answer for a level rod. The elevation of any hill and points of crossing the roads thus obtained are of value in connection with a local map, and members interested in such matters are urged to coöperate with the Club.

As some criticism has been expressed in regard to the present State map, the Councillor wishes to say that he has taken pains to investigate the matter to a certain extent, and has recently examined a map made from State sheets in connection with town boundary lines; in this map the triangulation to various peaks was exact and fitted the map absolutely. The details sometimes vary, but not more than is to be expected considering the expense of only \$13 per mile.

In Maine an important hydrographic survey has been completed, comprising the Kennebec River, its water powers, fall in the river from point to point, and a study of the storage basins in connection with the power. A full description is published in No. 198 of the United States Geological Survey.

The height of Mount Katahdin, which has been under discussion at various times, was determined again in 1906 by Harold S. Boardman, Professor of Civil Engineering at the University of Maine, Orono, Maine, and his assistant. The following quotation from a recent letter to your Councillor will be of interest:

“During the summer of 1906, while engaged in the hydrographic work of the Geological Survey on the West Branch of the Penobscot, my instrument man, Mr. T. M. Gunn, an instructor in the University, proposed that we measure the height of Mt. Katahdin. As we were at this time running a line of base levels along the river, and at the same time a traverse, the obtaining of the data necessary for figuring

the elevation was very easily done. Wherever we could see the monument erected on East Peak from a regular station, we took vertical and horizontal angles. On the completion of the work for the summer we had of course quite a number of those angles. Five points were selected for the computations, and four base lines were computed from the traverse, and from the horizontal angles the coördinates of East Peak were computed. These four results were averaged, to obtain the most probable coördinates of East Peak, and from these the distances were computed from each of the points of observation. These distances were in turn used with the vertical angles to obtain five values for the elevation of the peak. By averaging these results, the most probable value of the elevation of the top of the monument on East Peak was found to be 5260 feet with a probable error of the mean of .9 feet.

“On ascending the mountain we made as careful a determination of the difference of elevation of East and West Peaks as was possible without an instrument, and set West Peak thirteen feet higher than the top of monument at East Peak. This gave the elevation of West Peak as 5273 feet. The monument was taken as five feet high.”

It was Professor Boardman's purpose to check the computations by work done in 1907, and measures were taken to this end, but it was found necessary to postpone the completion of the work to the coming summer.

A topographical survey of Squam Lake has been in progress during the last four years and is now completed. This has been accomplished by the students of the Lawrence Scientific School, Harvard University, whose summer school of engineering was held at the camp on that Lake under the direction of Professor Hector J. Hughes.

At Goffstown, N. H., an inclined rack-railway has been constructed during the past year to the top of the Uncanoonuc Mountain, 1348 feet above sea-level. A hotel has been built, with a large observatory, from which an extended view is obtained. A small map published by the railroad shows the relative heights and distances of various peaks that can be seen from this point, and is very useful to the observer. This road is reached by electrics from Manchester.

Reports of the Councillors for the Autumn of 1907.**Art.**

BY CORA STANWOOD COBB.

THE Councillor of Art feels that a report from her will show not so much what has been done, as what has not been done since she was elected to the office a year ago. A trip abroad from March until July left her but a short time in which to be useful to the Club.

At the reception at the Vendome, last February, a new arrangement was tried, at the suggestion of some that there be fewer wall pictures. Those which were hung were chosen with care, being paintings of the White Mountains and photographs of the Alps and Canadian Rockies. As the room, from its own wall decoration and its lighting, is not suitable for exhibiting pictures, these did not show to advantage. There were some albums of photographs, which, it was noticed, received the greatest amount of attention.

On November 11 an exhibition of photographs by Mr. Ernest M. Astle was opened in the Club Room and continued for two weeks. The photographs were very fine ones, both in their artistic composition and in the technique of printing, and the subjects were such as especially appealed to members of the Club. These photographs have received such high praise that we hope the Club may have an opportunity to see more of Mr. Astle's work in the future.

In the middle of November a dozen albums of photographs were lent to us by the Sierra Club. These photographs were taken during this summer's outing of that Club in the Yosemite and Hetch-Hetchy valleys, and were exceptionally fine. It was unfortunate that the exact time of arrival of these albums could not be ascertained before the Bulletin went to press. As one of the conditions of the loan was their very prompt return, the albums could not remain as long as we wished, and many members of the Club who especially desired to see them were unable to do so. It is hoped that some of them which belong to members of our own Club can be seen at the exhibition of plants from the California Mountains, on Thurs-

day, January 16, in the Club Room, and also at the Annual Reception in February.

Mr. Frank W. Freeborn, of New York, presented to the Club in November an album of one hundred photographs taken by him in Yoho Pass and Paradise Valley, in the Canadian Rockies. This was very gladly received, and forms quite an addition to the Art department of the library.

There has been no request this year for the loan of the Sella photographs.

Reports of the Councillors for the Autumn of 1907.

Exploration and Forestry.

BY ALLEN CHAMBERLAIN.

THIS Department's record for 1907 may truthfully be summarized as follows: considerable effort expended with little tangible result. That has a discouraging sound, and yet it is confidently believed that some of this effort will eventually prove to have been constructive, provided that the Club (not to mention Congress) deems it wise to continue these lines of work.

Inasmuch as members of the Club have more than once asked what the duties of this Department are to-day officially considered to be, the Councillor wishes to take this opportunity to make a brief reply.

In the field of exploration the duties are quite plain. If the incumbent of the office is himself sufficiently imbued with the exploring spirit, he may make plans for explorations in new fields, or for the further exploration of partially explored regions, and endeavor to have these plans carried out through the agency of others. The Department should be prepared to assist mountain exploring parties, whether they are composed of members of the Club or not, with such information as the Club may possess. The Club's equipment of field instruments and mountaineering outfit, which is kept in the custody of this Department (see list of same in APPALACHIA, Vol. XI., No. 1), should always be available for the use of Club members who undertake mountain exploration work, information concerning which is to be made available to the public. The Councillor is also official recorder of the exploring achievements of Club members.

In the field of forestry the calls on the Department are numerous to-day. Close touch should be kept with forest legislation both in Massachusetts and in New Hampshire, and now that the Club holds forest land in Maine, it is needful to follow that State's doings in this line to some extent. The Club having taken a prominent part in the support of the national forest policy, especially in respect to the proposed extension thereof to the Appalachian Mountain system, the Department finds it needful to keep well to the fore in this matter, and in constant correspondence with the federal forest officers, and with other societies actively interested in furthering this extension.

As an *ex-officio* member of the Club's board of Trustees of Real Estate, the Councillor is expected to represent that board in the Council of the Corporation, and in turn to be the spokesman of the Council in his relations with the Trustees. In other words, he must endeavor to serve two masters, or more properly must seek to correlate their interests and serve the one master, the Corporation. In this connection the Councillor is expected to act as the forester of the Trustees, so far as his capacity will allow, involving the management of such forest lands as the Club owns (now amounting to about 670 acres, in eight reservations, located in three States).

So far as the Councillor is aware, nothing of any moment has been accomplished in the field of exploration by Club members during the past year.

This occasion is taken to suggest that there is a field for exploration of a modest but interesting nature in the upper Coös region of New Hampshire. Philip W. Ayres, forester to the Society for the Protection of New Hampshire Forests and to Dartmouth College, has described the territory in his talk before the Club in December. At the present day that region is not readily accessible to the general tramping public, chiefly owing to the lack of well-marked trunk trails. The region also should be better mapped. Any enterprising members of the Club who would enjoy making a beginning of this work would find this Department ready to give them the best assistance of trails, however, over the region should be done only after the necessary improvements.

The Department did not undertake to hold any exhibition of outfit this year. One contribution in this line was in the form of copy for an appendix to the report of the previous Councillor, in which were described and illustrated two useful articles of mountaineering apparel. (See APPALACHIA, Vol. XI, No. 3.) With the coöperation of two physicians, members of the Club, medical emergency outfit lists have been prepared, and the same are appended hereto.

At the invitation of the New England Forest, Fish, and Game Association, the Club made an exhibit at the Sportsman's Show in Mechanics' Building, Boston, last spring, in which the public service activities of the organization were set forth through maps, charts, and photographs. This exhibit was conducted by the Councillor of Improvements, assisted by the Councillor of Exploration and Forestry. At the conclusion of the Sportsman's Show the Club's exhibit was loaned, upon request, to the New England Federation of Natural History Societies for their exhibition in Boston, to the Society for the Protection of New Hampshire Forests as a feature of their annual meeting at Concord, and was finally sent to Jamestown as a part of the New Hampshire State exhibit at the special request of the Governor of that State. An invitation was received to enter this exhibit at an important sportsman's show held in New York City during Christmas week, but the material could not be secured from Jamestown in season.

This Department has of late fallen into the hands of men who may be classed as enthusiasts in forestry; as a consequence this branch of the work has been magnified, possibly, beyond the original intent. During the past year the campaign for the Appalachian National Forests called for considerable activity on the part of the Councillor in conjunction with the Chairman of the Trustees of Real Estate. Conferences with representatives of other organizations, with government officers, and with members of Congress were attended, not only in Boston, but in the mountains, and every effort made to throw the full weight of the Club's power in favor of the realization of this much desired extension of the national forest system to our side of the continent. While the Club urges with others the economic necessity of this national forest, it seems to be

its especial province to put forward the æsthetic arguments in the case. This it has done consistently from the outset, until the validity of the claim has been recognized by the government officers. As a result, an understanding has been arrived at with the Forest Service officials that certain specified tracts within the area desired for a national forest in the White Mountains shall be acquired for their scenic value. Such areas will be treated, not as commercial forest, but as national park lands, and kept in a state of nature. The total acreage of these scenic reservations is small, in comparison with that of the proposed national forest (only about 2500 out of 600,000 acres), but it is believed that the principal scenic gems of the mountain country have been included.

In this same connection the Councillor, following the policy of his predecessor, has kept in touch with the paper company which owns the timber in the vicinity of Pinkham Notch in an endeavor, thus far successful, to keep the axemen out of certain coveted areas.

As an owner of woodland in Massachusetts, the Club was represented at hearings before the legislature, last winter, in support of various bills for the better protection of the forests. It is possible now to report that, after many years of striving, an up-to-date forest fire law has been written upon the statute-books, and by it the owner of forest land is given some adequate police protection in return for his taxes.

As a member of the Trustees of Real Estate the Councillor has visited six of the Club's reservations this year, some more than once. At Three Mile Island he served during the summer as the resident member of the committee in charge. There is great need of further thinning operations in the woods there, and the vistas from the Club-house should be cut out, as the sprout growth is rapidly obliterating them. On the Joseph Story Fay Reservation at North Woodstock an effort to carry out the plans of the previous Councillor in connection with vista cutting and path construction failed through inability to secure competent local labor.

At the Rhododendron Reservation the Club has its greatest forestry problem. A vast amount of slash from the logging just prior to the Club's taking title still encumbers much of the

ground outside of the rhododendron area, and while this remains, despite the excellent fire-lanes, our Reservation is in danger of being destroyed by fire. This property, amounting to about 300 acres in round numbers, is so deeded that only the rhododendron area, approximately 12 acres, is reserved for the public. The remainder of the tract is regarded as an endowment for the Reservation proper. The Trustees desire to make this endowment area productive. To this end the cottage has been fitted up for letting, and it is hoped that a market may be found for the excellent spring water and the silica found on the place. It has seemed to the Trustees that the greatest promise of return was found in the stock of timber now growing on the place, and in the possibilities from planting certain worn-out fields and useless pastures to timber trees. This subject was referred to the Councillor for investigation, and he in turn has secured the assistance of the United States Forest Service. Mr. Benton MacKaye of the Service was assigned to the task. After carefully examining the tract, and spending several days on the ground organizing the work of destroying the slash, the forester has finally rendered a written report in which he recommends that a timber valuation survey and working plan should be made before any planting is undertaken. Until such a survey is provided, no estimates of any business value can be produced as to the advisability of entering upon a timber farming enterprise. It is the off-hand opinion of the forester and of the Councillor that the chances are largely in favor of this plan proving profitable to the Club in the long run.

The Council having provided a generous sum for the destruction of the slash the past year, an effort was made to secure sufficient local labor to carry on the work. It was impossible to secure more than two or three men, so that the work had to be done by a volunteer crew of Club members under the direction of Mr. MacKaye, the forester. It was apparent that this arrangement would prove expensive, but the necessity for more completely insuring the rhododendron area against fire being evident, the Trustees decided that the extra cost was justified. About five acres, situated in the very worst portions of the slash areas, were thoroughly cleared up in this way. The debris was dragged into piles by horse-power and left ready for

burning. In all forty-seven piles were prepared, of which number twenty-eight were large and nineteen small. The large piles averaged twenty by twenty feet on the ground and ten to fifteen feet in height. The smaller piles were about ten by ten feet on the base and six to ten feet high. Wet weather coming on while the party was at work, piling was suspended and burning begun. Twenty-five piles were burned, twelve large and thirteen small ones. This left twenty-two piles, mostly large ones, still on the ground. These can be left indefinitely with little danger, and burned when convenient.

The work of destroying more of this débris should be pushed as rapidly as funds can be spared for the purpose, regardless of whether the Club embarks upon any more ambitious forestry work there or not. Through the generosity of Mr. J. Rayner Edmands of the Board of Trustees of Real Estate, \$100 has been provided which will insure the cleaning up of another area the coming season. It is roughly estimated that there remains from seventy-five to one hundred acres of this slash.

The Sierra Club having called upon our Club through the Councillor to aid them in defending the Hetch-Hetchy Valley, in the Yosemite National Park, from certain forces in the city of San Francisco which seek to drown out that picturesque valley with a storage basin, the matter was investigated by him as carefully as possible, and upon his report the Council took appropriate action in the premises.

Summer residents of Intervale, North Conway, and Kearsarge, N. H., called attention in the early winter of 1907 to the sale of the stumpage on two tracts within the Cathedral Pines. At the time of writing this report the matter is being investigated by the Department, and letters sent to all property owners in that neighborhood, stating the facts as found, and endeavoring to arouse local sentiment in favor of raising funds for the purchase of these celebrated woods for a public reservation.

MEDICAL AND SURGICAL EMERGENCY OUTFITS PRESCRIBED BY PHYSICIANS, MEMBERS OF THE CLUB, FOR USE OF MOUNTAINEERING AND CAMPING PARTIES.¹

List prescribed by Dr. Mary R. Lakeman, Salem, Mass.

ESSENTIALS.

Sal-codeia, 5-grain tablets.

Brandy.

Castor Oil, 1-drachm capsules.

Toothache Gum.

Hypodermic case containing

Strychnia Sulphate, $\frac{1}{80}$ gr.

Nitroglycerine, $\frac{1}{100}$ gr.

Potass. Permang., 1 gr.

Apomorphia, $\frac{1}{10}$ gr.

Bicarbonate of Soda.

See directions for use of syringe in chapter xxi. of "The Book of Camping and Woodcraft."

Same also found in Abercrombie and Fitch Catalogue.

NON-ESSENTIALS.

Quinine Sulphate, 2-grain pills.

Sweet Oil.

Opium Tincture.

Papayans (Bell), 5-grain tablets.

Aloin, Strychnia, and Belladonna, 1-grain pills.

DRESSINGS.

Bandages 2 inches wide.

Adhesive plaster 1 inch wide (Johnson & Johnson zinc oxide), 10 yards makes 2 Gibney splints.

Sterilized gauze, in several small sterilized packages, one small dressing in each.

Absorbent cotton, in several small sterilized packages, one small dressing in each.

Carbolized vaseline (in collapsible tube).

Flexible collodion (with brush).

Directions for Using the Above.

Disease.

COLDS.

Sal-codeia 10 grains, in enough hot water to dissolve, repeated in an hour, then continue 5 grains every 3 hours, or,

Quinine Sulphate, 2 grains every 2 hours.

TONSILLITIS.

Sal-codeia 5 grains every 2 hours, also gargle with solution of 2 tablets in 4 tablespoonfuls of hot water.

¹ Reference is also made to "The Book of Camping and Woodcraft," by Horace Kephart, chapter xxi., "Accidents — Their Backwoods Treatment," especially the pages on the use of the hypodermic syringe. Dr. L. C. Frans of the Club has devised, most ingeniously, a medical and surgical emergency kit which is literally a vest-pocket outfit.

RHEUMATISM.	Wrap part warmly in absorbent cotton or flannel. give Sal-codeia 5 grains every 2 hours.
NEURALGIA.	Apply heat and give Sal-codeia 5 grains every hour till relieved.
HEADACHE.	Same as for neuralgia. If associated with dizziness or disorder of digestion, give 2 teaspoonfuls Castor Oil (2 capsules).
TOOTHACHE.	Toothache Gum, if there is a cavity; if not, ice or heat externally will usually relieve.
EARACHE.	Sweet Oil and Opium, on a bit of cotton, inserted in ear.
CONSTIPATION.	Castor Oil 1 capsule at night or 1 Aloin, Strychnia, and Belladonna pill at night.
DIARRHŒA.	Castor Oil 2 capsules, followed by brandy, 1 teaspoonful every 2 hours. Stop eating, drink large quantities of <i>pure water</i> (or boiled).
MOUNTAIN SICKNESS.	Retreat to lower altitude as soon as possible. Give Nitroglycerine $\frac{1}{100}$ gr. hypodermatically or by mouth, repeat in four hours, if necessary. Hot drinks and light nourishment.
BURNS AND SCALDS.	Sweet Oil or Castor Oil with enough soda to make paste. Later apply Carbolyzed Vaseline and protect from air. Prick blisters beyond edge and leave skin for covering.
CUTS.	If extensive cleanse <i>thoroughly</i> , soak in saturated solution of Permanganate of Potash, dry, and apply strips of adhesive plaster to draw edges together. If slight, cleanse, wash in Permanganate solution, and apply cotton with Collodion.
SPRAINS.	<p>Massage deeply but gently and apply heat immediately; then bandage firmly without stopping circulation. If of ankle apply Gibney splint, as follows :—</p> <p>“In applying strapping in sprains of the ankle or tarsus, strips of rubber adhesive plaster one and a half inches in width and eighteen inches in length are required. The first strap is started at the junction of the middle and upper part of the leg, either upon the inner or outer side [according to which side is sprained. — Ed. Note], and applied closely to the edge of the Tendo Achillis, and carried across the sole of the foot to the bone of the great or little toe; several of these straps are applied, covering in the inner or outer side of the ankle. A strap is placed with its middle at the point of the heel, the ends being carried to a point at the junction of the metacarpal bones and the tarsus; a number of these</p>

ascending straps are applied in an imbricated manner, until the ankle joint is covered. The straps should not be applied so as to meet in front of the foot or ankle and make circular constriction. After the ankle has been strapped as above described, the foot and the ankle are covered with a gauze bandage, and the patient is allowed to walk upon the injured foot.

"Many surgeons apply the Gibney dressing whatever the amount of pain and swelling may be, while others prefer to wait a few days until by rest in the recumbent position, and the application of cold or heat, or of a sedative lotion, the swelling has diminished. In general, we believe, however, that the Gibney dressing may advantageously be employed at any stage of the injury.

"If the patient is heavy, it is always well to make the vertical straps quite long. They may extend to just below the knee joint. This forms a stirrup which will be strong enough to prevent any motion of adduction of the foot, if the sprain be external, or of adduction, should it be internal." — Wharton & Curtis, *Pract. of Surg.*, p. 558.

**CHAFING
AND BLISTERS.**

Prevent by covering part with adhesive plaster cut with rounded corners. If blistered, prick, apply Carbolyzed Vaseline at night with bandage, and apply plaster in the morning. Soap or Corn Starch may also serve as preventives.

SNAKE BITE.

Permanganate of Potash, saturated solution, inject with hypodermic syringe several inches about wound. If no syringe is available, soak gauze and apply, changing often. Give Strychnia $\frac{1}{8}$ grain every 4 hours.

Apply ligature between wound and heart at once. Loosen occasionally to allow blood to flow to the extremity. Unless ligature is applied at once omit it entirely and allow Permanganate to follow venom into general circulation.

TARANTULA BITE. Same as for snake bite.

SUNBURN AND SNOW-BURN. Prevent by using mahogany stain. Apply Collodion 1 part, Castor Oil 2 parts at night, and allow to remain through day. Wipe skin with oil for cleansing. Bruised Plantain leaf relieves burning.

FROST-BITE. Do not rub. Apply snow or cold water or merely the bare hand. Paint with Collodion and cover lightly.

ACUTE INDIGESTION. Give 2 Papayans tablets, preferably in hot water, and

- repeat every 10 minutes till relieved. For severe abdominal pain apply ice to the entire abdomen ; keep at *perfect* rest and get a doctor as soon as possible. (Possibility of acute Appendicitis.)
- EXHAUSTION.** Give Strychnia Sulphate $\frac{1}{80}$ grain, hypodermatically or by mouth in hot water, or brandy, 2 teaspoonfuls in hot water.
- POISONING BY MUSH-ROOMS, PTOMAINES, ETC.** Give Apomorphia $\frac{1}{10}$ grain hypodermatically. (This causes immediate vomiting.) Follow this by $\frac{1}{80}$ grain Sulphate of Strychnia, hypodermatically, and by teaspoonful doses of brandy repeated as necessary.

List Prescribed by Dr. Howard Wells, Naval Hospital, Chelsea, Mass.

DRUGS FOR INTERNAL USE.

Quiniæ Sulph. tablets, gr. 1 each.
 Acetanilid tablets, gr. 2½ "
 Dover's Powder tablets, gr. 5 "
 Cathartic Vegetable Pill, U. S. P. laxative.
 Soda Mint tablets.

DRESSINGS.

Gauze bandages 2½ inches wide, No. 6.
 Absorbent cotton, borated, oz. 4.
 Pins, common assorted, 1 paper.
 Pins, safety, assorted, No. 12.
 Adhesive rubber plaster, 2-inch spool, No. 1.
 Gauze, plain, 1 metre.
 Cold Cream.
 Bichloride of Mercury (for cleansing wounds — external only — never in eyes), tablets, oz. 1. [POISON.] Keep these tablets entirely away from drugs for internal use.
 Potash Permanganate, 1 drachm in crystals.

Directions for Using the Above.

<i>Disease :</i>	
COLDS.	Quiniæ Sulph. 1 tablet every half hour.
RHEUMATISM.	Quiniæ Sulph. 1 tablet every half hour.
NEURALGIA.	Quiniæ Sulph. 1 tablet every half hour.
	Or Acetanilid, 1 tablet every hour.
HEADACHE.	Acetanilid, 1 tablet every hour.
CONSTIPATION.	Cathartic vegetable pill, 2 or 3 on retiring.
DIARRHŒA.	Dover's Powder, 1 tablet every 2 hours.
MOUNTAIN SICKNESS.	Descend to lower level.
BURNS AND SCALDS,	Wash thoroughly and dress with borated cotton and a
CUTS AND CHAFES.	little cold cream to prevent sticking.

SPRAINS.	Put joint in hot water for a half hour and bandage firmly.
SNAKE BITE, OR TARANTULA BITE.	Apply ligature, not too tight, between wound and heart. Dissolve Potash Permanganate crystals in water till solution is purple color. Drop it into wound. A strong solution of Ammonia may be used similarly if Potash Permanganate is not at hand. Give Whiskey freely in small doses if heart shows weakness.

Reports of the Councillors for the Autumn of 1907.

Improvements.

BY HARLAND A. PERKINS.

WHILE the work accomplished by the Department during the year has been in the main satisfactory, in some senses it has been disappointing. This being the present Councillor's third and last year, he had hoped that it might be the best, but some new factors entered which had a retarding influence.

In the first place, late snows and heavy and continuous rains during the spring and early summer seriously retarded the work in the woods, in some cases little being accomplished before August, so that many traversed the paths before they had had their spring cleanings and naturally concluded that the Club was neglecting its work. Another factor was the failure of woodsmen, who, it was thought, had been proven reliable, to do the work laid out for them; at the same time they failed to notify the Councillor, thus giving him the impression that the work was in progress, when really nothing had been accomplished. This latter fact, while disappointing, only tends to emphasize the difficulties one has to contend with, when contracting for work at such a distance, with only occasional supervision. This leads the Councillor to believe that in the future it will become more and more desirable to place path work through local improvement associations, when such exist, the Club furnishing signs, funds, and occasional advice and supervision. Local organizations can better oversee the work, and can secure men for lower wages than the Club has to pay, for in some quarters the impression still seems to exist that we are an aggregation of mil-

lionaires. The prevalent increase in prices has at last struck our woodsmen, so that in several quarters the Club has had to meet an advance in wages of from fifteen to twenty per cent.

The greatest accomplishment of the Department, judged by the benefit rendered the public, has without doubt been the publication of the "Guide to Paths and Camps in the White Mountains," which, after many delays, made its appearance early in July. The book sold well, and has apparently stood the test of use, for comparatively few errors or improvements have been reported, and those of an entirely minor character. The work of the Guide-book Committee is mentioned more in detail farther on in this report.

Rev. Raymond M. Dow Adams has continued to help the Councillor in the care of the register rolls, an assistance much appreciated. Three new filing-cases have been placed in the Club library for the accommodation of filled rolls. About the usual number of rolls have been returned, and a number of broken or lost cylinders replaced. Early in the spring, it is proposed, at the suggestion of Mr. Albert Hanford Moore of Cambridge, to place cylinders at two prominent points near the Gulfside Trail, that trampers over that route, which avoids the summits now bearing such records, may have an opportunity of registering. Mr. Moore has also rendered welcome assistance in the case of registers on the Northern Peaks.

Lumbering operations last winter overran Club paths at a number of points, though the injury done was not in any case very serious. It would now appear that future operations will be mostly of a sporadic nature, likely to injure at any one time only a small portion of any path, so that it would not now seem inexpedient to keep open our scheduled paths, wherever located.

After his experience in the office of Councillor of Improvements, the present incumbent has been led to believe that some change of policy or method of administration in the Department could be made to advantage. The greatest present difficulty lies in the large amount of time necessary to carry on so extensive a work as the care of the paths and camps, and in the lack of a continuous policy, due to the constant changing of Councillors; and it would seem that so important a work as this has come to be, should in some way be placed on a more permanent basis.

The Club is looked upon by an indiscriminating public as the custodian of all mountain paths, and if their condition is bad the Club gets the discredit ; so if we are to do path work at all, it must be in increasing rather than decreasing measure.

Two possible remedies suggest themselves and are here presented for the consideration of Club members.

First: The forming of a Committee on Improvements, composed of past Councillors, to determine policy and advise the Councillor in all matters for which he does not alone wish to accept responsibility, thus insuring the interest and coöperation of these officers, and the benefit of their experience after the close of their terms of office, and a fairly continuous plan of action.

Second: The transfer of the custody of all paths and camps to the Trustees of Real Estate, they to determine questions of policy, apportion expense, and distribute the various sections of the mountains to certain Club members, who shall each care for the paths in his particular section, being allowed travelling expenses for the purpose. This latter arrangement would have the advantages of interesting more members in the work, of consuming only a few days' time on the part of any one, and the developing of suitable material to fill the office of Councillor. The Councillor of Improvements might then be made the *ex-officio* member of the Trustees. This arrangement would secure a control not entirely affected by the changes of officers from year to year.

When at the Carrigain Camp this past August, the Councillor again had an opportunity of visiting the Pemigewasset Wilderness trails, and was more than ever impressed with their wonderful variety and beauty, the fine virgin growth of spruce, pine, and arbor vitæ, the winding, picturesque streams, and, in contrast with these, the desolation and bareness of the burned region, with its stark white tree skeletons, its dry brook beds, and its utter uselessness for man's purposes.¹ Club members should take early opportunity to visit this region, as the lumberman is swiftly and surely working his way up the valley of the East Branch. It is estimated that, with the present rate

¹ An extensive forest fire in Henry's tract in the valley of Franconia Branch, though raging for weeks in August and September, fortunately did comparatively little damage to green growth, being confined almost entirely to the old cuttings.

of cutting, five years will see this region stripped of its growth. No new lumbering has taken place yet in the Rocky Branch Valley. Early last summer a railroad was built from above Glen Station to a point near Stairs Brook, but the financial depression, it is understood, prevented further operations.

As no work was done on the Pemigewasset Wilderness trails, the expenditures for this year were slightly less than last, amounting in all to a little over \$400. In addition, final bills to the amount of about \$33, contracted during the erection of Carter Notch Camp, were paid the former Councillor of Improvements, J. S. Pray. Mr. Pray has also turned over to the Club contributions to the amount of \$41, from Mr. W. S. Biscoe and others, for the erection of a tower on Carter Dome. The tower actually having cost only \$8, the balance was applied to the payment of Carter Notch Camp.

NORTHERN PEAKS: Late in April the Councillor made an extended trip to Randolph to look over the condition of paths in the logged region, it having been reported that all lumbering had ceased which would in any way injure the Club's system. With Thaddeus Lowe, a very thorough inspection was made of the lower part of the Castellated Ridge Trail, Lowe's Path, King Ravine Path, and the Cabin-Cascade Trail. It was decided to utilize the plain logging road leading from near Bowman Station up the valley of Israel River as the first part of the Castellated Ridge Trail, resuming the old path when near the forks of the river. This offers a plain and easily maintained route, and one not likely to be injured by future logging operations. The Castle-Cascades Trail, to lead from the Castellated Ridge Path to the Cascades, was then laid out, to permit those coming from the direction of Bowman Station to reach Mount Adams via the Cascades and the upper part of the Israel Ridge Path, which is unobstructed.

Lowe's Path, on account of its thorough clearing last year, was found to be in excellent condition, requiring only a comparatively small amount of cutting, bushing out, and additional signs. The King Ravine Branch of this path was found to be in an impassable condition on account of logging operations, which had covered it deeply with slash, the cutting extending nearly to Mossy Fall, and being particularly bad near the cross-

ing of Spur Brook. On his return the Councillor brought the matter to the attention of the Council, with the result that a special appropriation of \$50 was made in addition to the regular appropriation. This sum, however, it afterwards developed, was not needed, as the work proved less expensive than was estimated. The paths above mentioned and the Air Line and Air Line Branch were later cleared by Thaddeus Lowe, who also cared for the Pond of Safety and Ice Gulch Paths, the whole work being accomplished for slightly over \$100. The King Ravine Branch of the Air Line, which was completely lost in slash, was formally abandoned by vote of the Council. "The Cornice," an obscure path leading from the upper part of the Castellated Ridge path to the Adams-Jefferson col, though not a Club path, was marked and somewhat improved, as it forms, for those ascending the Castellated Ridge, a convenient short-cut to the Gulfside Trail, avoiding the summit of Jefferson.

Mr. Percy Dawson, who was summering at Randolph, did valuable work in clearing the Short Line, thus reopening that convenient route to King Ravine. Thaddeus Lowe also assisted in this work. In addition Mr. Dawson made "the Link" passable as far up as its intersection with Lowe's Path, thus making Mount Adams via Lowe's Path available from the vicinity of the Ravine House.

Vyron Lowe cleared the Osgood Path at a cost of \$27, and improved and relocated the lower end, avoiding much of the uninteresting lumbered region formerly traversed between the Glen House clearing and the crossing of the West Branch of the Peabody River. The path as relocated was adopted as a Club path at the October meeting of the Council.

On account of the necessity of an abundance of path signs in the lumbered region about Randolph, the Department adopted a standard marker, 3" x 12", pointed at one end and notched on the other, painted white, thus making a pointer much less expensive than path signs and just as effective.

CARTER-MORIAH RANGE: Vyron Lowe cleared the Carter-Moriah Path between Moriah and Imp, which had been overrun by logging operations, and put Imp Camp in order. The expense of this work was \$19. George L. Howard of Jackson cleared the Jackson-Carter Notch, Wildcat, and Nineteen Mile Brook

Paths in his usual thorough manner, and mowed the bushes on the latter. Carter Notch Camp has been for some time in a deplorable condition, but after negotiations extending over several months, permission has recently been secured from Colonel Edward H. Haskell, President of the Hastings Lumber Co., the owners, to make extensive alterations, which will make the camp more comfortable and convenient. The changes contemplated include a new stone and tile chimney located at the northerly end instead of the rear of the building, and, in place of the present smoky fireplace, a serviceable wood stove, which it is hoped will materially save the surrounding growth by diminishing the amount of fuel used. At the same time much needed general repairs and improvements may be made to the exterior. The Council having previously expressed a willingness, the work will probably be started as early as practicable in the spring, to be completed before the tramping season sets in.

MOUNT WASHINGTON: Logging operations completely blocked the lower quarter mile of the Glen-Boulder Path. Vyron Lowe cut through this slash, cleared the path above, placing additional cairns on the upper part, at an expense of \$14.50. Many favorable comments have been received regarding this picturesque path. Tuckerman Ravine, Raymond and Huntington Ravine Paths, and the Boott Spur Trail were cleared by George Howard, who also cleaned up the Refuge and made minor repairs to Hermit Lake Camp, the whole at a cost of \$15. At least one party was saved this year from serious inconvenience, and perhaps danger, by the Refuge.

FRANCONIA MOUNTAINS: The Twin Range Path received no attention this year, as W. F. Carleton of Jackson, who usually cares for this path, was unable to attend to the work, nor was he able to clear the Carrigain or Willey Paths or the Wilderness trails. The Franconia Ridge Path and extension from Haystack to Henry's R. R. in the East Branch valley were cleared by the North Woodstock Improvement Association under the supervision of Professor Karl P. Harrington. The path between Haystack and Liberty, which has been somewhat blind in places, has been made unmistakable.

The path up Mount Liberty has been relocated, and now leads from the *north* bank of Flume Brook at the head of the Flume.

It passes through a lumbered (though well-wooded) region, and a little below Camp Liberty joins the former path, which it follows to the Ridge Path. That portion of the old path from the Flume Road to the point where the new path joins, was abandoned, and the relocation adopted at the October meeting of the Council. The entire cost of this work, thanks to the efforts of Professor Harrington and Mr. A. S. Perkins of Dorchester, Mass., was less than \$10.

ALBANY INTERVALE: The trails in the vicinity of the Albany Intervale, including the Swift River Trail and extension, Institute Path and Cutoff, Passaconaway Slide Path, Bolles Trail, Bear Mountain Notch Trail, the Champney Falls Path to Chocorua, and the South Moat and Ridge Paths, were cared for in the usual efficient manner by O. S. Smith of Passaconaway, at a total expense of \$38. Logging operations last winter badly clogged the Chocorua path, but by utilizing logging roads, a clear route has been maintained during the summer. At Waterville, Mrs. Elliott's men cleared the Institute Path to the height of land and the Sandwich Dome Path at an expense of \$6. Mr. W. C. McGill of Lower Bartlett has done considerable work in clearing and marking the path over Bartlett Mountain to Kearsage, the Club assisting by furnishing signs and paying \$5 toward the hire of workmen. Fred Lucy of North Conway cleared the path up North Moat from Diana's Baths, and reports the same in good condition.

FUTURE WORK: For the coming year two path propositions suggest themselves, and are here set down for the consideration of the incoming Councillor.

The Beaver Falls Path up Moosilauke from near the Lost River is an exceedingly picturesque path, but it is reported in poor condition. If the Lost River tract near by should become a Club Reservation, this, as some members of the North Woodstock Improvement Association suggest, would seem to be an added reason for the acceptance of the path; and if the Glen Cliff Path up the same mountain from the opposite side could also be obtained, a material addition would be made to the Club's system of trunk lines, two of which, the Swift River trail and the Franconia Ridge path and extension, now radiate from North Woodstock.

The Councillor has recently made two trips in company with other Club members to the summit of Mount Crawford near Bemis, at the lower end of the Crawford Glen, and was much impressed with the accessibility as well as the delightful view from this mountain. A small expenditure would reopen the old Davis Bridle Path from Bemis to a point near the summit, and another picturesque peak would be added to the long list already made available by Club paths.

NEW MAP: Mr. Louis F. Cutter has under way a new map of the Northern Peaks covering the territory from Madison to Washington, instead of stopping between Jefferson and Clay as formerly, and it is expected that this will be ready for distribution with copies of the Guide-book sold this spring.

THE GUIDE-BOOK. — The early history of the work of the Guide-book Committee was given in my last year's report of this Department. Subsequent to that report the Committee finally gathered and edited the material, which was published about July 10, 1907. From the first the work found a ready sale, Club members in particular taking advantage of the reduced rate of eighty cents, in operation prior to August 1. Books were placed with the Boston bookstores, also with the principal mountain hotels and some railroad news companies. Returns are not yet all in, but the following, based upon sales up to November 1, 1907, will give an approximate idea of the financial aspect of the enterprise: —

SALES.	
To Club members	223
Through hotels and bookstores	241
	—
Total sales	464
On consignment	37
Exchange and complimentary	50
On hand	149
	— 236
	—
Total bound to date	700
On hand unbound	1300
	—
Total edition	2000

EXPENSES.

Total expense for the work to date	\$747.00
Cost of binding balance of edition, 1300 copies . .	494.00
	<hr/>
Total cost of entire edition	\$1241.00
Total receipts for entire edition (estimated) . .	1425.00
	<hr/>
Profit on entire edition (estimated)	\$183.00

From the above it will be seen that the final profit which may accrue to the Club is so small as to be of no great consideration ; but the Councillor believes that, even should the final sheet show a loss, the book would be a distinct benefit to the Club as a public service.

To Messrs. Larrabee, Hart, Kellogg, and Hale, who assisted the Councillor, the greatest measure of praise should be given, for without their steadfast and loyal coöperation the work would have been an utter impossibility. Night after night these men met, wrote, discussed, and criticised the material at hand, until it was at last threshed into proper shape for publication.

At the October Council Meeting the following was passed : —

“*Voted*: That the Council create an additional standing committee of not more than five members, to be known as the Guide-book Committee, to succeed the present committee of the Department of Improvements. This committee to have charge of the circulation and revision of Part I. of the ‘Guide to Paths and Camps in the White Mountains,’ and the collection of such material as may be obtainable with a view to further publication. The Councillor of Improvements to be *ex-officio* a member of this committee.”¹

The idea of this motion was to discharge the Departmental Committee which has so far had charge of the Guide-book work, creating in its place a permanent standing committee of the Council, which committee, should it be thought wise, could continue the work thus begun. It is proposed, and in fact some material has already been gathered, to collect from time to time path descriptions of various peaks in the westerly half of the White Mountains and adjoining regions, filing this in loose leaf

¹ This committee has since been made a sub-committee of the Publishing Committee.

form at the Club rooms for the use of members. When sufficient material has been gathered, and finances permit, this data can be published as "Guide to Paths and Camps in the White Mountains, Part II.," and meanwhile all this information will not be tied up in the archives, but available for use. This method will also permit careful and critical editing of the matter before publication. Members are urged to coöperate in this work by sending in to the Committee accounts of trips taken, with estimates of distances and times.

The Committee desires to acknowledge the kindly aid, in the preparation of Part I., of a large number of mountain lovers in many walks of life, including guides, editors, ministers, lawyers, doctors, geologists, botanists, and civil engineers. This information came from widely separated localities, including New Hampshire, Massachusetts, Connecticut, New York, New Jersey, Virginia, and Michigan. Valuable assistance was rendered by men connected with several of our eastern colleges, particularly Harvard, Yale, Dartmouth, and Amherst. Among those who cheerfully came to the aid of the Committee in furnishing important data are Frederick Tuckerman of Amherst; B. B. Bickford of Gorham; Frank H. Burt of "Among the Clouds;" John Anderson of Bretton Woods; Ida F. Russell of Kearsarge; Professor Torrey of New Haven; and Arthur K. Harrison of Princeton, Michigan. Among the Club members from Boston and vicinity who either furnished needed information or made valuable suggestions were Parker B. Field, George N. Whipple, J. Rayner Edmands, E. C. Pickering, Allen Chamberlain, Robert E. Blakeslee, A. H. Moore, Sheldon J. Howe, J. S. Pray, W. G. Nowell, George R. Blinn, and many others. Mr. Blakeslee, without remuneration, prepared the very useful map of the Southern Peaks which is included with the work, also the sketch map on page 148. In preparing the section devoted to the Northern Peaks, Laban M. Watson of Randolph, N. H., was consulted a number of times, and was always able and willing to furnish the required information. The Committee is under great obligation to Eugene B. Cook, who furnished a large amount of interesting historical matter for this section. His letters will prove a valuable addition to the files of the Club.

Finally, the Committee believes that particular mention should

be made of the large amount of painstaking work done by Louis F. Cutter. His services in the Northern Peaks Section were so important that the Committee feel that if the book is fortunate enough to be well received, Mr. Cutter is entitled to share in its success.

Report of the Committee on Field Meetings and Excursions for 1907.

THE Committee on Field Meetings and Excursions organized with William A. Brooks, Chairman, Frederick H. Matthews, Secretary, and George D. Newcomb, Treasurer. Mr. Alexander M. Wilson resigned from the committee in the spring, and was succeeded by Mr. Gorham Dana.

Thirteen regular meetings were held, with an average attendance of six.

Seven Excursions, five all-day Outings, and forty-one Saturday afternoon Walks were planned.

A party was again formed to join the Sierra Club on their annual outing.

Thirty-two afternoon Outings have been taken with an average attendance of 55. Four all-day Outings had an average attendance of 131. Nine afternoon walks and one all-day trip were given up on account of inclement weather, and the Outing of April 6 was omitted as a mark of respect to the memory of Mr. Walter R. Davis and Mr. Francis W. Newhall, recently deceased.

The attendance upon the seven Excursions was 378, with an average of 54. The total attendance on the Outings was 2271, with an average of 63.

The financial report for the year is as follows:—

Cash on hand January, 1907 . . .	\$292.63	
Received during the year, to Dec. 1, . . .	450.66	
		<u>\$743.29</u>
Payments	461.40	
		<u>\$281.89</u>
Balance		\$281.89

Of this balance \$206.56 is on deposit and \$75.33 is in hand, besides some \$20 in railway tickets.

Abbreviated reports of the several excursions and a tabulated synopsis of excursions and outings are herewith presented; to which are added the two winter trips conducted by the Snow-shoe Section.

WILLIAM A. BROOKS, Chairman,	} <i>Committee on Field Meetings and Excursions.</i>
CHARLES P. CASSON,	
GORHAM DANA,	
FREDERICK H. MATTHEWS,	
WILLIAM T. MAY,	
EDWARD MOFFETTE,	
GEORGE D. NEWCOMB,	
CHARLES A. NEWHALL,	
EDWIN A. START,	

DETAILED REPORTS OF THE YEAR'S EXCURSIONS.

Two trips were made to the White Mountains during the winter of 1907 by the Snow-shoe Section, both being in charge of Mr. Walter R. Davis and Miss Helen E. Endicott. The first party of thirteen members was in GORHAM from January 26 to February 2, with headquarters at the Mount Madison House.

The second party, numbering 104, left Boston February 16, for that Mecca of pleasant memories, the Iron Mountain House at JACKSON. The next day, following what has become an established custom, the official party of fifty climbed Thoru Mountain, starting in fair weather but encountering a snowstorm later. Monday was a perfect winter day and Moat was the objective point. Another party went to picnic in the snow on Duck's Head. Tuesday was cloudy, but a trip was made to Black Mountain, the party returning home by the long pasture on the western slope. No views were had of Washington, but there were beautiful glimpses of Double-head through the storm. Wednesday a party ascended Wildcat, some of the members keeping on down the farther side to Glen Cottage, others going to Prospect Farm. Thursday was devoted to Iron Mountain. Friday, Washington's Birthday, was intensely cold, with a bitter wind sweeping from the bare and icy summits through Crawford Notch, where we went by special train to insure an appetite for the annual banquet in the evening. Three parties set out from the Notch station, and entered the woods, beautiful in their immaculate winter garb, the snow-shoes making the first breaks on the white surface, except where a fox or a rabbit or a deer had left the story of its wanderings. Clinton, Willard, and Avalon were the peaks selected, and all were successful trips,—the Avalon climb especially, for the dozen men and women who essayed that pretty little mountain found themselves, after a long and somewhat arduous scramble up the very steep and slippery course of a brook that comes down a deep and

narrow ravine, on the bleak summit of Mount Field. The day was bright, with an intensely blue sky, but very cold, and the strong, biting wind blew the dry snow from the trees in such clouds that we travelled as in a snow-storm, the flying flakes at times shutting out the views. But the winter forest, vested with the charm and mystery of the white silence, was never more beautiful as our sinuous course wound in and out among the trees. A few moments on the summit were all sufficient, and we were only too glad to seek the shelter of a thicket of snow-laden spruce, where we discussed our frozen sandwiches and doughnuts. The thermometer was below zero all day. Saturday Kearsarge, Middle, and Tin were climbed, and Spruce, Eagle, Iron, and Thorn on Sunday. Through the week many shorter walks and sleigh rides were enjoyed.

The party returned to Boston Monday, February 25, or at least made the attempt so to do; but a snow-plough disabled at West Ossipee causing a delay of several hours, the train reached Boston at 3.30 A. M. on Tuesday.

The Memorial Day Excursion, May 29 to June 3, was to the Monadnock region, with headquarters at the Leffingwell, DUBLIN, N. H. Seventy members and guests made up the party.

All-day trips were taken to the Rhododendron Reservation at Fitzwilliam, to the Farrar Reservation on the south peak of Pack Monadnock, and to Grand Monadnock. The Monadnock party descended by the northeast spur. An afternoon drive around Beech Mountain was also enjoyed.

The excursion was in charge of Mr. Edward Moffette and Mr. John Ritchie, Jr.

The forty-second Field Meeting of the Club was held on the SUMMIT OF MOUNT WASHINGTON during the week from June 29 till July 6, it being the fifth meeting of the Club at this place. Seventy-five persons took part in it. There were many sessions for the reading of papers, every evening being thus occupied, as well as portions of two rainy days.

The haze of Saturday, in which the party arrived, was the forerunner of a storm that broke Sunday and lasted into Monday. No excursions were sent out till Tuesday. On Tuesday, Wednesday, and Thursday, a party was sent each day to the Club hut for over night. On Wednesday a natural history party under Mr. Emerton was started for an out of doors all-night stay.

Tuesday a party made the descent through Tuckerman Ravine to Hermit Lake and return, encountering snow high up on the path as it rounds the gully into which falls the Cascade of a Thousand Streams. Wednesday the larger company made the trip along the northern peaks to Spalding's Spring and return, while a smaller one descended Tuckerman's and made the ascent of the head wall of Huntington Ravine. Thursday, July 4, there was a trip to Mount Pleasant and return with Mr. J. R. Edmands, one to the Alpine Garden, and minor walks. On Friday the official party was to Boott Spur, other trips being led up the Raymond cataract and to

Lion's Head and the Alpine Garden. On Saturday morning the return was made to Boston by early train.

The guides for the week were Vyron D. Lowe and George L. Howard. The Committee consisted of Mr. John Ritchie, Jr., Chairman, and Mr. and Mrs. Edward Moffette.

In response to the invitation of the Sierra Club, thirteen Appalachians appeared at their camp in the YOSEMITE VALLEY, on July 3, where all received a very hearty welcome. After a few days spent in visiting the local points of interest, the Yosemite Falls Trail was taken out of the Valley and on to the Porcupine Flats; there the old Tioga road was fixed upon and followed to the Tuolumne Meadows, where the permanent camp was established. From this point side trips were taken to Tioga Lake, Mount Dana, Mona Lake, by way of Mona Pass, and Walkers Lake, Rafferty Peak, Merced Cañon, Mount Ritter, and Mount Dana. Afterwards this camp was broken and two knapsack parties went through the Tuolumne Cañon under leadership of Messrs. Colby and Parsons, to the Hetch-Hetchy Valley, where they joined the larger section that had already reached there by way of the Tuolumne road and the new government trail. From here the combined forces went to El Portal by way of Middle Fork and Crocker's Ranch. At El Portal the Pullman train was taken for Oakland, and an extremely pleasant trip was at an end, as from this point each took his own line of travel homeward. The Appalachian party was in charge of Mr. Charles P. Casson.

The Camp of August 9 to 22, 1907, was located in LIVERMORE, N. H., along Whiteface Brook, about halfway between its junction with Sawyer River and where it is crossed by the Mount Carrigain trail, in a thick growth of spruce and hardwood. The preliminary party arrived Wednesday noon, and at once set to work building a road over which to get in the outfit.

Thursday was occupied in clearing tent-sites of brush and trees and in pitching tents. Friday afternoon the main party of forty-three, in charge of Mr. Dennett, arrived at Sawyer River station, where both trunks and people were transferred to a flat car and special engine of the Sawyer River R. R., owned by the Livermore Mills Lumber Co., which transported the company free of charge to within a short walk of camp. Saturday morning was very fully occupied in building and arranging tent furniture. In the afternoon the entire party went up Carrigain, and were repaid by a fine view. A small contingent of the men went down over Vose Spur to Carrigain Notch trail, arriving in camp after dark.

Sunday, the 11th, was spent around camp, except that those who arrived Saturday night went up Mount Carrigain. Monday Tremont was climbed over the northern ridge, which was followed through thick stunted spruce, making very hard travelling to the southern summit. The party returned by Sawyer Pond and river to camp. Tuesday was a quiet day in camp. Two of the party went fishing and brought back over one hundred trout. For Wednesday the ascent of Mount Willey and an over-night camp in the wilderness were planned, but on account of rain, all but a few who walked to

Crawford's, took the train from Willey House station, and tramped back to camp by the road. Thursday the party went through Carrigain Notch and down the East Branch of the Pemigewasset, through virgin forest of spruce and white pine of great size, many trees being over three feet in diameter and perfectly straight, with not a branch for fifty feet from the ground. Most of the party took the cut-off to the North Fork; the rest followed down to the junction of the river and went up the North Fork, overtaking the main party as they were about to make camp. Friday the campers left this beautiful spot, going up the North Fork through that burned and desolate country to the north, by Thoreau Falls to Willey Pond, where lunch was eaten. In the afternoon thirteen went up Mount Willey, the others going down to the railroad, where they took an early train back to the home camp. Saturday morning was spent around camp and at the swimming-pool in Sawyer River. In the afternoon the party went up the railroad by "special flat-car" to the logging camps and returned with a train-load of logs.

Sunday morning, the 18th, inspection of quarters was ordered and proved a very busy and instructive hour. At dinner the camp entertained Mr. Saunders (of the Livermore Lumber Co.) and his family, also Mr. and Mrs. Goulding and Mr. Paine. Great thanks are due Mr. Saunders for the free use of his trains and his carriage horses, which he loaned to haul the outfit. Great credit is also due Mr. Goulding, who did everything in his power to make the camp a success. During the afternoon Ambassador Bryce, his wife, and two secretaries thoroughly inspected the camp and were apparently much interested and pleased.

Monday the party took the train for Bemis, going up Mount Crawford. After lunch the more energetic ones made a hurried trip across to the summit of Resolution. Returning to Bemis, the old Davis trail was followed. Tuesday was a day off, thankfully welcomed by many. Wednesday was cloudy in the morning, clearing in the forenoon. After an early dinner the party followed the path up the east branch of Whiteface Brook to Nancy Pond, then over slash and blowdowns to Norcross Pond, where, from the appearance of the low, marshy shores and sandy beaches, the deer must hold high carnival. The camp was pitched at the outlet, the only dry and level place to be found, and a very pleasant and comfortable night was spent. Thursday the town boundary was followed to the summit of Mount Anderson. Fine views were enjoyed, and some ideas obtained of the vast fires which had been raging in the Franconia Valley, about twelve miles to the northwest, the smoke of which had enveloped the camp as in a cloud for a few hours one afternoon. The return was made by Whiteface Brook. On Thursday night an amateur performance, the only social event of the camp, was given with great success. Friday morning, at an early hour, came a cry for trunks, and the tents were speedily vacated.

The party, which numbered forty-four, was in charge of Mr. Charles A. Newhall and Mr. Harland A. Perkins. Roger Allard was the guide, and Mr. and Mrs. O. S. Smith the cooks.

After a very interesting drive of six miles from Ashland Station, the Labor Day party, fifty-seven in all, arrived at the Mount Livermore Estate, Holderness, N. H., in time for supper on Friday, August 30.

On Saturday carriages were taken for the seven-mile drive along the shore of Great Squam to the foot of Mount Israel, where lunch was eaten. The ascent was made in the afternoon. The first part of the way was quite open with many fine view-points, but higher up it was thickly wooded and very steep, and precipitous ledges made the climbing without a trail hard but interesting. The summit, which is free from trees, afforded splendid views of Lakes Winnepesaukee and Squam in the south, with Sandwich Dome in the near distance at the north, and the Presidential Range in the background. On Sunday morning the circuit of Great Squam was made, with a stop at High Haithe, all being enthusiastic over the beauties of the landscape. The outlook from Mount Livermore, which was ascended in the afternoon, is one of rare beauty, and well worth the little effort required to make the short climb to its summit.

On Monday Mount Prospect was ascended, lunch being taken before the summit was reached, because of the strong probability of rain. While at the top the downpour came, and fortunate were those who were prepared for it. Under the circumstances the outlook was limited, but it was apparent that it must be exceptionally good on a clear day.

The party returned to Boston Tuesday during a hard rain, yet all enthusiastic over the fine scenery of the "Squam Country." The excursion was in charge of Mr. William T. May and Mr. F. H. Matthews.

The WALKING PARTY, which numbered seven, assembled at Bristol, N. H., on Tuesday, September 3, proceeding in the afternoon to Newfound Lake, and there taking a launch for Miss Kimball's, at East Hebron. The rain that began while the party was on the lake did not cease till noon Thursday, so that the trip to Stinson Lake and part of that to Campton Village were in carriages. In the afternoon of Thursday the party walked from Ellsworth to the Hillside House, Campton Village. Friday proved to be the best day of the excursion. The day's trip was begun by using the train to Woodstock. The new lumber road was then taken through Eagle Notch into Thornton Gore and followed as far as Eastman's Brook. From this point a way independent of the path was made to East Pond, and after luncheon the steep side of Scar Ridge was attacked. Along the ridge the town line was followed over the humps and cliffs to the summit of Osceola, and then the regular path taken to Waterville. Saturday the route was to North Woodstock by the way of the Greely Ponds and the Hancock Branch trail. Sunday was another day of unpleasant weather. Monday the party walked to Woodstock and thence by wood-road to Elbow Pond. From this point a bee-line was taken to the Warren road, which was followed to Breezy Point. At four in the afternoon the ascent of Moosilauke was begun. The day had been pleasant, but about two miles from the summit the clouds closed in and did not lift again. After waiting till afternoon Tuesday for clear weather, the party dropped down over the Benton trail to the Parker House,

and the following day being the most rainy of the series, it was obliged to take carriages again, this time for the Flume House. Thursday promised to be clear, so that the ascent of Liberty was made in the forenoon, but the clouds shut in again, and it was not feasible to walk the Franconia Ridge. Friday proved to be similar in point of weather, and only Pemigewasset was ascended, with a walk in the afternoon to North Woodstock. The party returned to Boston on Saturday, September 14. As for several preceding years, it was in charge of Mr. J. Ritchie, Jr.

The objective point of the Fall trip — September 20 to 28 — was MOOSE-HEAD LAKE in northern Maine, with headquarters at the Mount Kineo House. One hundred and ten members and friends travelled by a special train of four Pullman cars to Kineo station on the new Somerset road, whence they continued their journey by boat to Mount Kineo. Saturday afternoon the camp of Mr. Sumner R. Hooper, a club member, was visited. Sunday morning Kineo was climbed, and in the afternoon a steamboat trip down the lake to Lily Bay was enjoyed.

Heavy rain on Monday, the 23d, caused the substitution of a barn party for the mountain trip that had been planned, sixty-five members participating. On Tuesday a party of sixty crossed the lake to the mouth of Moose River, which was followed up to Brassua Lake by canoe and trail. Wednesday morning thirty members, with six guides and twelve canoes, went to Spencer Bay and paddled up Spencer stream to the pond of the same name, from whose shores they climbed Spencer Mountain, 3300 feet high, by a new trail that was cut out by some of the party. On Thursday a steamer was taken to Squaw Brook, and a good five-mile trail followed to the summit of Squaw, the best of Moosehead Mountains, 3900 feet in altitude. A heavy snow-squall was a feature of the day. All hands — both the trampers and the stay-at-homes — picnicked at the East Outlet Dam on Friday, having a noon steak-fry over a great open fire. A trip by steamer to Lily Bay, and a paddle part way home in sixteen canoes, completed a delightful week in the open. Boston was reached at 8 P. M. on Saturday, the 28th.

The committee in charge were Mr. George D. Newcomb, Mr. William T. May, and Mr. Harland A. Perkins.

EXCURSIONS.

Objective Point.	Leader.	No.
January Snow-shoe Trip to Gorham.	W. R. Davis.	13
February Snow-shoe trip to Jackson.	W. R. Davis.	104
Memorial Day Excursion to Dublin, N. H.	Edw. Moffette.	69
Field Meeting at the Summit House, Mount Washington.	J. Ritchie, Jr.	80
Sierra Club's Outing in California.	C. P. Casson.	13

August Camp at Mount Carrigain.	C. A. Newhall.	44
Labor Day Excursion to Holderness, N. H.	W. T. May.	50
Walking Party.	J. Ritchie, Jr.	7
Autumn Excursion to Moosehead Lake.	G. D. Newcomb.	110
Christmas Holidays' Excursion to Quebec.	W. T. May.	18

OUTINGS.

Date. 1907.	Objective Point.	Distance. Miles.	Leader.	Attendance.
Jan. 5.	Canton, Muddy and Reservoir Ponds.	3½	Miss Endicott.	46
12.	Lexington, Granny Hill, across country to Win- chester.	4	G. D. Newcomb.	Rain
19.	Clarendon Hills, across coun- try to Highland.	3	G. D. Newcomb.	Rain
26.	Belmont, across country to Arlington Heights.	3	G. D. Newcomb.	21
Feb. 2.	Mattapan, Chickatawbut Hill, Pine Tree Brook.	3	S. C. Rogers.	26
9.	Wellesley Hills, the Hundreds Woods, Mount Russell.	4	W. A. Brooks.	93
16.	Fells, Virginia Woods, Old Red Mill Ravine.	4	F. H. Matthews.	40
22. (<i>all day</i>).	Lynn Woods, Bow Ridge Camp.	7	A. R. Bailey.	125
23.	Mattapan, Gray's Rock, the Cave, and Shattered Rocks.	4	H. A. Jenks.	29
Mar. 2.	Lexington, Granny Hill, across country to Win- chester.	4	G. D. Newcomb.	Rain
9.	Chestnut Hill Road, walk to Roslindale.	4	C. P. Casson.	36
16.	Waltham, Prospect Hill.	2½	C. P. Casson.	53
23.	Chestnut Hill Reservoir, Wa- ban Hill.	3	C. P. Casson.	45
30.	West Side Charles River, across country to Newton Upper Falls.	5	C. A. Newhall.	75
Apr. 6.	East Side Charles River, across country to Upper Falls.	5	C. A. Newhall.	Cancelled
13.	Chickatawbut Hill.	3	J. H. Emerton.	Rain

EXCURSIONS.

425

Apr.	19. (<i>all day</i>). Magnolia, Singing Beach, Manchester.	6	G. D. Newcomb.	235
	20. Canton, Wetherbee Pasture, Hoosicwhissic Golf Club.	4	H. A. Jenks.	43
	27. Melrose Highlands, Saugus, and Melrose Woods, Bear Mountain.	4	J. E. Pember.	78
May	4. (<i>all day</i>). Annual walk over the Blue Hill Range, Rattlesnake to Great Blue.	9	C. A. Newhall.	Rain
	(<i>afternoon</i>). Hancock Hill to Great Blue.	3	G. D. Newcomb.	Rain
	11. Dedham, Powisset Cliffs and Noanett Hill.	5	E. Moffette.	Rain
	18. Tower Hill, Metropolitan Aqueduct, Brown's Hill.	5	W. S. Edmands.	64
	25. (<i>afternoon and evening</i>). Cohasset, Mohawk Valley.	3	G. D. Newcomb.	133
	30. (<i>all day</i>). Springdale, Pondshire Meadows, Muddy Pond.	6	Miss Endicott.	52
June	1. Highland, Mount Bellevue, Stony Brook Reservation.	4	J. A. Crosby.	33
	8. Wellesley Hills, West Shore, Lake Cochituate.	4	W. R. Katelle.	70
	15. Sharon, Moose Hill.	3	Miss Warren.	86
	17. (<i>all day</i>). Baker's Island.	—	G. D. Newcomb.	112
Sept.	7. Lynn Woods.	3	A. R. Bailey.	36
	14. Waban, Cochituate Aqueduct, Sudbury River Aqueduct.	4½	E. L. Homer.	37
	21. Dedham, Powisset Cliffs and Noanett Hill.	5	E. Moffette.	Rain
	28. Nahant, Cliff Walk.	3	P. B. Field.	6
Oct.	5. Highland, Bald Pate Hill.	4	W. T. May.	46
	12. Dedham, Fox Hill via Sand Valley Road.	4	F. H. Hunter.	49
	19. Ashcroft to Green Lodge.	3	E. Moffette.	6
	26. Weston, Metropolitan Water Works Basin.	5	W. S. Edmands.	61
Nov.	2. West Quincy, Rattlesnake and Rattle Crag.	3	J. Ritchie, Jr.	57
	9. Charles River Village.	5	G. Dana.	62
	16. Dover, Pegan Hill.	5½	W. T. May.	73
	23. Mattapan, Hancock Hill, Copeland Farm.	3½	P. B. Field.	112
	30. Weston, Doublet Hill.	5	W. S. Edmands.	80

Dec. 7.	Wellesley Hills, a woodland Walk.	3	W. A. Brooks.	60
14.	Lynn, Sanborn's Ledge, Holy Cross Hill.	3	A. R. Bailey.	26
21.	Middlesex Fells.	5.	E. I. Homer.	34
28.	Dover to Charles River Vil- lage.	4	C. A. Newhall.	31

Report of the Room Committee for 1907.

It is doubtful whether the Club rooms were ever visited by so many members and friends as during the past year, during which there have been frequent council and committee meetings, exhibition of plant and insect collections, art exhibits of photographs and water-colors, and reunions of nearly all the excursion parties of the year. Among the most distinguished visitors was the Duke of the Abruzzi, one of our honorary members, who made a brief call during his stay in Boston.

The Entomological Club is the only outside organization which has occupied the rooms, its meetings coming once a month.

The rooms have been open in the usual way and at the regular hours as for the past year or two, each afternoon, except Saturday, being in charge of custodians who kindly give one or two afternoons in each month, with the exception of July and August. There have been several changes in the personnel this fall, but the new workers have already fitted into their places and everything is now running smoothly. The Committee takes this opportunity heartily to thank the custodians, whether regular or substitute, for their willing service.

At the suggestion of the Council there was placed in the large room during the summer a case containing the Scarboro Company's latest map of the White Mountains, five sheets of the Geological Survey of the White Mountain Regions, Mr. Cutter's map of the Northern Peaks, and Mr. Blakeslee's maps of the Presidential Range and the latest Club map of the country about Boston mounted on rollers, for the convenience of those desiring to consult them.

We are indebted to Mrs. Chaloner for her kindness in presenting to us a handsome sofa cushion; and to another member of the Club for the recovering of the three already in our possession. Several alterations in the furnishings in the rooms could be made to advantage, and it is possible a gradual change can be started in the near future.

The At Home of President and Mrs. Field, which occurred on the 13th of May, was a delightful occasion. Many called both afternoon and evening to meet the new executive and his wife.

The Room Committee held an At Home on the 9th of December. The day proved an unfortunate selection, being the day before the State election,

so that the Club Bulletin was delayed in delivery and many did not receive notice of the At Home till the next day. The number present was consequently smaller than usual, but those present had a most enjoyable time.

MARTHA A. VINAL,

Chairman.

For the Committee.

Proceedings of the Club.

June 29–July 5, 1907. — Forty-second Field Meeting, held at the Summit House, Mount Washington, N. H.

Owing largely to dull weather for the first three days, the meetings occupied several sessions, all of which were attended by a large proportion of the members of the party. The use of lantern slides for illustration added to the enjoyment of the evening meetings.

On Saturday, June 29, the meeting was called to order at 8.45 P. M., with President Field in the chair. Mr. Ritchie, Chairman of the Committee in charge of the excursion, made several announcements for the week. Mr. H. H. Clayton of the Blue Hill Observatory then spoke at some length of "Clouds and their Distribution," describing and illustrating by lantern slides the different forms of clouds and their methods of growth.

June 30, at 3 P. M., Mr. Harvey N. Shepard spoke of the Club reservations, under the charge of the Trustees of Real Estate, briefly describing them all, twelve in number. Particular mention was made of Snyder Brook reservation as likely to be in a short time the only bit of forest growth left unhurt by the lumbering on the northern slopes of the Presidential Range.

A probable policy of the Trustees was mentioned, not to accept further gifts of land unless provision should be made in some way for their maintenance. This policy seems necessary to prevent an undue draft on the Club treasury for this one department, but it would be subject to exceptions in certain cases of urgent need, as at Glen Ellis Falls, Crystal Cascades, and Lost River.

Mr. Hollis Webster then spoke on "The Distribution of Alpine Plants."

The distribution of Alpine plants has been supposed to be conditioned only by climate. Recently Professor M. W. Fernald has brought out the fact, that we have in eastern North America at least three nearly distinct Alpine floras existing under similar conditions of climate, whereas further north, where Alpine conditions occur at low altitudes, the plants of all three floras may be mingled. In seeking an explanation he finds that the constituents of the rocks play a deciding part, the three floras corresponding to regions in which potash (from granite, schist, etc.), lime, or magnesium (in serpentine) are the principal materials on which the plants draw. The White Mountain region is granitic or schistose, containing abundant potash in the feldspar. A further conclusion is that in the advance of vegetation

northward after the glacial period, only those Alpine plants climbed the mountains which found there the rocks suited to their needs.

At 8.30 the same evening Professor C. H. Hitchcock, who was one of the organizers of the volunteer meteorological expedition which spent the winter of 1870-71 on Mount Washington, gave an illustrated lecture describing vividly the experiences of the winter. After a brief account of each member of the party, there followed a description of the ordinary daily routine of duties, consisting chiefly of taking, sometimes with great difficulty, full sets of meteorological observations, and the reducing and reporting of these to the Smithsonian Institute at Washington. Fierce winds and storms sometimes occasioned hardships, but they were recompensed by the sight of many beautiful phenomena, and the monotony was relieved by full and constant telegraphic communication with the outside world.

On Monday, July 1, a meeting held at 10 A. M. was addressed by Professor J. H. Emerton of Boston and Mr. Allen Hazen of New York City. Professor Emerton gave an interesting account of the various classes of spiders found in this locality. Their habits, and mode of getting their fresh food, working chiefly in the dark, were graphically described as well as the various kinds of web made by them. Interest was greatly enhanced by the speaker's weaving a large sized spiral web of white string before the audience.

Mr. Hazen spoke of a recent visit to Queensland, Australia. (See Report of Special Meeting, p. 434.)

At 3 P. M. Professor Hitchcock gave a brief talk on the general geological characteristics of the White Mountain region, mentioning particular points in the vicinity where illustrations of the various features could be seen.

At 8.30 P. M. Mr. Clayton gave an illustrated lecture on "The Exploration of the Air." The study of the upper currents, which move with very high velocities, is of the greatest use in weather forecasting, and is accomplished by the use of mountain stations, balloons, and kites.

On Wednesday evening Mr. William L. Hall, of the National Forest Service at Washington, made an address on "The National Forests." These tracts cover about 140,000,000 acres, and contain about one third of the timber which grows west of the Mississippi River. There are at present no such reserves east of the Mississippi, and as seventy-five per cent of our timber is used in this section and only forty-five per cent is grown there, the call for an Eastern reserve is very pressing, — the more so as, at the present rate of cutting, the supply will last only twelve years. Such reserves would also serve to protect the water power, check the filling up of streams, and prevent extraordinary floods. Mr. Hall made a strong plea for a more generally diffused public spirit, which should recognize the great value of the mountains in raising the standard of health and of the æsthetic sense of the people, and congratulated the Club on what it was accomplishing in this direction.

On Thursday evening Mr. J. R. Edmands gave an informal talk on "Moun-

tain Paths." After some account of the building of the earlier paths on the Northern Peaks, Mr. Edmands spoke of the work in which he had more recently been interested in the region near Mount Pleasant, where various improvements and short cuts were now being made. He spoke also of plans in view for a series of paths to encircle the cone of Mount Washington.

On Friday evening the closing lecture was given by Mr. Clayton, on "Methods of Weather Forecasting and Mountain Meteorology." Mr. Clayton explained the methods by which the reports from the whole country are tabulated and studied so as to make possible correct estimates of the track over which storms are to pass. He also described the meteorological stations maintained on Ben Nevis, Mont Blanc, the Peak of Teneriffe, and other summits.

October 11, 1907. — Two hundred and sixty-sixth Corporate Meeting, held in Potter Hall.

President Field in the chair.

Mr. John Ritchie, Jr., was elected Secretary *pro tem*.

The President announced the appointment of the Committee to Nominate Officers for 1908, viz. : Mr. Harvey N. Shepard, Chairman; Mr. Edwin L. Homer, Mr. Charles N. Mason, Mrs. Willis H. Ropes, and Miss Susan Williams.

Dr. James Mackintosh Bell, Director of the Geological Survey of New Zealand, gave an illustrated lecture entitled "Exploration in the Heart of the Southern Alps." New Zealand has about 110,000 square miles, and exhibits a marvellous range of objects of scenic interest. In the northern island there are volcanic phenomena of magnitude and splendor. In the southern island are fine peaks and snow-fields, and in the southwestern part there is a region of fiords; and everywhere the vegetation is luxuriant. The climate has an important effect upon mountaineering. Although these Alps are only forty-four degrees south of the equator, their glaciers descend almost to sea-level, and the limit of perpetual snow is as low as four or five thousand feet. The mountains extend through a distance of about 180 miles, culminating in Mount Cook, 12,350 feet. In considerable detail the speaker described various of the expeditions in which he personally assisted, the story being one of rain, difficulty, danger, and lack of food. The beautiful illustrations bore testimony to the charms of New Zealand for the climber.

November 12, 1907. — Two hundred and sixty-seventh Corporate Meeting, held in Room 22 Walker Building.

President Field in the chair.

The attendance was about one hundred and twenty-five.

The President announced the appointment of the following Auditing Committee: Mr. Ephraim Harrington, Chairman; Mr. William O. Withereff, and Mr. Henry A. Jenks.

Mr. J. H. Emerton presented his annual report as Councillor of Natural History. (See p. 387.)

A report of the Department of Exploration and Forestry was presented by the Councillor, Mr. Allen Chamberlain. (See p. 397.)

Mr. Harland A. Perkins also reported as Councillor of Improvements. (See p. 407.)

November 26, 1907. — Special Meeting, held in Room 22 Walker Building.

President Field in the chair.

The attendance numbered about two hundred and eighty.

Mr. William Lyman Underwood gave an illustrated lecture entitled "By-paths in Florida and Nassau." The speaker visited Palm Lodge at Sherman, Florida, an unfrequented place. He showed beautiful views of the tropical forests and the ocean waves, and particularly interesting were the pictures of pelicans and the manatee or sea-cow. He then took his audience to Nassau, describing the sponge and sisal industries and showing many illustrations of the people and their customs. He closed with alligator pictures taken near St. Augustine.

December 11, 1907. — Two hundred and sixty-eighth Corporate Meeting, held in Huntington Hall.

President Field in the chair.

The audience numbered about two hundred and fifty.

Mr. Philip W. Ayres, Forester to the Society for the Protection of New Hampshire Forests, and to the Dartmouth College Grant, gave an illustrated lecture entitled "The Picturesque Wilderness beyond the White Mountains."

With the aid of a map he presented the region under discussion. He first described the forests about the Connecticut lakes, and showed illustrations of uncut spruce, culled forests, and slash country, and explained the good and bad methods of cutting.

The picturesque scenery of Dixville Notch was illustrated, and the audience then taken on a tramping trip to the Diamond Ponds and the College Grant. The forestry work of Dartmouth College was described, as also the logging camp and the loggers, some of whom are fine types of men.

The glacial features of the country were noted, also the wild game and the mountain views, particularly that from Azischohos. The speaker closed with an invitation to the Club to visit the region and in particular the College Grant.

December 18, 1907. — Special Meeting, held in Huntington Hall.

The audience numbered two hundred and thirty-five.

The President announced the appointment of the following committee to arrange for the Annual Reception: Mr. Robert A. Ware, Chairman; Miss

M. A. Knowles, Mr. J. B. Chevalier, Miss M. C. Chester, and the Councillor of Art. He then introduced Vice-President Brooks, Chairman of the Excursion Committee, as the presiding officer.

The evening was devoted to accounts of excursions.

Mr. Brooks described the snow-shoe trips of the past winter, showing beautiful views taken in the vicinity of Jackson. He referred appreciatively to the work done by the late Walter R. Davis in managing snow-shoe excursions for many years, and the great indebtedness of members to him therefor.

Mr. Edward Moffette gave an account of the Memorial Day Excursion to Dublin, N. H., with illustrations taken at the Rhododendron and Farrar Reservations, and an account of the ascent of Monadnock.

Mr. John Ritchie, Jr., described the Forty-second Field Meeting, held on the summit of Mount Washington. He mentioned in detail the numerous papers and talks which filled the evenings and stormy days, and gave accounts of the trips taken to various points upon the range. Among the many illustrations were several beautiful ones of flowers and clouds.

The meeting closed with an interesting account, by Mr. C. A. Newhall, of the Mount Carrigain Camp in August at Livermore. He showed pictures of the Camp, and described several of the mountain ascents made during the two weeks. (For details see Report of Excursion Committee, p. 420.)

January 8, 1908. — Two hundred and sixty-ninth Corporate (Annual) Meeting, held in the Lecture Hall of the Boston Society of Natural History.

President Field in the chair.

The attendance was seventy-two, including eleven Presidents and ex-Presidents.

Miss Cora Stanwood Cobb presented her report as Councillor of Art. (See p. 396.)

Mr. Richard A. Hale presented his report as Councillor of Topography. He referred to the new work by Mr. L. F. Cutter on his maps of the Northern Slopes of the Great Range, and the work of Mr. E. G. Chamberlain, particularly in connection with the outings and excursions, and appended an account of the work of the Geological Survey, some measurements of Kataadn, the survey of the Squam Lake district by the Harvard Engineering School. The matter of publishing this report in full was discussed, and it was voted, on motion of Mr. Shepard, that the publication of this and all other reports presented at this meeting be referred to the discretion of the Publishing Committee. (See p. 389.)

Miss Martha A. Vinal presented the report of the Room Committee. (See p. 426.)

Mr. Gardner M. Jones presented the report of the Library Committee, referring especially to the new classification and recataloguing of the books. (See p. 373.)

The report of the Recording Secretary (see p. 371) was then presented. The Corresponding Secretary gave an oral report. It was voted that the

care of the list of Honorary and Corresponding Members be made a part of the duties of the Corresponding Secretary.

The Treasurer then presented his official report (see p. 375) and read a supplementary paper containing explanations and interesting comments. It was voted that the question under what heading the accounts of the "Guide to Paths and Camps in the White Mountains" should be placed be referred to the Treasurer and next Council for consideration.

Mr. Rest F. Curtis presented the report of the Trustees of Permanent and Reserve Funds (see p. 380). The proposition that the funds be invested in securities instead of Savings Banks was discussed, but no action taken.

Mr. Harvey N. Shepard read the report of the Trustees of Real Estate (see p. 382), giving in detail the work done on the various reservations.

The report of the Auditors was presented by the chairman, Mr. Ephraim Harrington.

The proposition that the report of the Excursion Committee be presented to the Club at its annual meeting as well as to the Council was referred to the Council.

It was voted that the various reports be accepted and placed on file, subject to the votes reported above.

Mr. Harvey N. Shepard, Chairman of the Committee to Nominate Officers for 1908, presented the Committee's report. Sixty-two ballots were then cast, and the following candidates were unanimously elected:—

President, Gardner M. Jones; Vice-President, Harland A. Perkins; Recording Secretary, Rosewell B. Lawrence; Corresponding Secretary, Mrs. Otto B. Cole; Treasurer, Rufus A. Bullock; Councillors: Natural History, J. H. Emerton; Topography, Richard A. Hale; Art, Miss Cora Stanwood Cobb; Exploration and Forestry, Allen Chamberlain; Improvements, Warren W. Hart. Trustees: Permanent and Reserve Funds (for three years), Charles H. French; Real Estate (four years), Augustus E. Scott.

The new President then assumed the chair.

January 21, 1908. — Special Meeting, held in Huntington Hall.

President Jones in the chair.

The audience was about five hundred.

Mr. Rosewell B. Lawrence gave an illustrated talk on "Jamaica, the Gem of the Antilles." The geography and physiography of the island were sketched with the help of a map, and statistics given concerning the industries, the production of bananas, oranges, pines, coffee, cocoa, sugar, and pimento. The lantern views illustrated the scenery of many parts of the island. The earthquake pictures and two ascents of Blue Mountain Peak, 7360 feet, were the most important illustrations.

January 30, 1908. — Special Meeting, held in Potter Hall.

President Jones in the chair.

The audience was about two hundred.

Dr. Henry G. Bryant of Philadelphia, Secretary of the American Alpine

Club and Ex-President of the Philadelphia Geographical Society, gave an illustrated lecture entitled "Java ; the Garden of the East." In course of his tour about the world, including an excursion into the Himalayas, the speaker spent some time in visiting this island. He described the people, the animal life, the colonial character of the government, the ruins of Boro Boeboedor of the ninth century, — the largest known Buddhistic remains, — and his ascent of Bromo, the principal volcano of the island. A large number of interesting lantern slides were shown, made from photographs taken by the lecturer.

February 4, 1908. — Two Hundred and seventieth Corporate Meeting, held in Huntington Hall.

President Jones in the chair.

The audience was about two hundred.

Professor C. E. Fay spoke briefly concerning the Jubilee of the English Alpine Club, which he had attended in December as the representative of the American Alpine Club and the Appalachian Mountain Club. He described the various functions, and mentioned the distinguished men whom he had the pleasure of meeting, and illustrated his account of the grand banquet with lantern reproductions of the interesting and unique invitation and menu, and with views of the exterior and interior of Lincoln's Inn, where the banquet was held. (See p. 366.)

Illustrated reports of the excursions in the past year were given. Mr. William T. May described the Labor Day excursion to Holderness, N. H.

Mr. John Ritchie, Jr., gave an interesting account of the September Walking Party.

Mr. George D. Newcomb told about the Autumn Excursion to Moosehead Lake, and Mr. Parker B. Field closed the evening with a description of the last trip of the year, the Christmas Holidays' Excursion to Quebec.

(For details see Report of the Excursion Committee.)

February 11, 1908. — Special Meeting, held in Huntington Hall.

President Jones in the chair.

The audience numbered about two hundred and fifty.

Professor William H. Pickering gave an illustrated paper entitled "The Volcanoes of the Azores." (See p. 344.)

An illustrated paper entitled "Ten Days in Corsica" was given by Mr. Russell S. Codman. The speaker made a bicycle tour of the islands a few years ago, visiting unusual points of interest and doing some mountain climbing. Though the island in places lacks accommodation for travellers, he found the people courteous and hospitable. It is almost wholly occupied by a broad mountain chain of gray granite and limestone, the western coast being bold and rocky, the eastern coast being the only part which is low and level. The mountain range averages 4000 feet in elevation, the highest peaks reaching nearly 8000 feet, and Monte Incudine, which is said to com-

mand the finest view in Corsica, 7010 feet. Much of the island is covered by a fine forest, chiefly chestnut. Allusions were made to the history of the island, to Paoli and Napoleon. The views illustrated the rugged scenery of the mountains and rocky coast, the interesting towns and villages, and the picturesque watchtowers and Corsican peasants.

February 19, 1908. — Joint Meeting with the Boston Society of Civil Engineers, held in Lorimer Hall, Tremont Temple.

The weather was very stormy, but the attendance was about one hundred.

President Howe opened the meeting and President Jones introduced the speaker, Mr. Allen Hazen of New York, a member of both organizations. Mr. Hazen's subject was "A Short Trip in Australia." He compared Australia with the United States in area, population, and climate, and described the political divisions and physiography of the continent. The highest mountains are about 7000 feet in elevation, but the range near the settled portions is 3000 to 4000 feet. There are no evidences of glaciation, and there is therefore a great depth of soil composed of rotten rock. Wherever there is water the ground is very fertile, and the great problems of the continent are therefore those of water storage and irrigation. Where the rainfall is heavy, floods and droughts alternate. Many of the views illustrated engineering in several different branches, railroad, water supplies, sewerage, and sewage disposal. Brisbane, Sidney, and Melbourne were the cities best illustrated. The Australian people were characterized as earnest, well educated, democratic, loyal to England, and in many respects like the people of our West.

March 11, 1908. — Two Hundred and seventy-first Corporate Meeting, held in Huntington Hall.

The meeting was called to order by Mr. Ritchie, no one of the officers being present. Mr. E. A. Whitman was chosen Chairman and Mr. Ritchie Secretary. Mr. Charles A. Gilchrist of Philadelphia spoke of "Climbs on Popocatepetl and Ixtaccihautl." (See p. 197.)

The paper was illustrated by many photographic views, nearly all of which were colored. They were tinted by Mr. Gilchrist according to notes taken at the time of the exposure of the plate. The pictures were remarkably fine, being of high artistic merit, and the coloring was likewise remarkable.

March 18, 1908. — Special Meeting, held in Huntington Hall.

President Jones in the chair.

About one hundred and seventy-five persons were present.

The speaker was Mr. V. Stefansson, and his paper (illustrated) was entitled "Trip down the Mackenzie and across the Arctic Rockies." Mr. Stefansson intended to meet a certain ship on the shore of the polar ocean for exploration purposes, but the ship was wrecked. He journeyed overland to the mouth of the Mackenzie River, spent the winter with the Eskimo,

and returned by a trip across the country to the Yukon. The return included a trip of eight days down the Bell River on a raft, during which time the explorer was alone. His paper furnished an excellent idea of the character of this northern section of the Rocky Mountain country, and was particularly interesting as a story of the life of the Eskimo, who have been altogether misrepresented. They are simple in their habits, communistic in their ideas of property rights, and the picture presented of them was very interesting. Table etiquette, marriage and divorce, methods of livelihood, and such matters were discussed. Mr. Stefansson visited some of the wild tribes that had never seen a white man.

March 25, 1908. — Special Meeting, held in Huntington Hall.

President Jones in the chair.

The audience numbered about one hundred and twenty-five.

Mr. Jones read a letter from Ambassador Bryce, suggesting the adoption of the word "corrie" for those "ravines" which, like Tuckerman, have precipitous walls, their heads being arcs of circles.

Mr. Harvey N. Shepard sketched the reservations of the Club historically and scenically, illustrating his report by means of more than one hundred lantern projections. He related quite at length the development of the Fay Reservation at North Woodstock, in which many picturesque outlooks have been opened, the whole treatment being in accordance with plans formulated by Mr. Olmstead.

April 8, 1908. — Two hundred and seventy-second Corporate Meeting, held in Huntington Hall.

President Jones in the chair.

The audience numbered one hundred and forty-five.

Dr. Herschel C. Parker gave an illustrated lecture entitled "An Exploration in the Olympic Mountains, State of Washington." Mount Olympus is situated about fifty miles from Puget Sound, and measures 8200 feet in elevation. On account of the heavy rainfall there are great glaciers and the forest in places is high, making an unusual combination of woods and snow. Fifty lantern views, beautifully colored, illustrated the route, the forests of Douglas fir and cedar, the waterfalls, glaciers, and jagged peaks.

A paper prepared for APPALACHIA by Dr. William Hunter Workman on "Some Altitude Effects at Camps above Twenty Thousand Feet" was read by Rev. Charles L. Noyes. (See p. 350.)

April 15, 1908. — Special Meeting, held in Huntington Hall.

President Jones in the chair.

The audience numbered one hundred and forty-five.

Mr. Frank W. Freeborn gave an illustrated talk on "Two Camps in the Canadian Rockies." (See p. 325.) Mr. Freeborn was Corresponding Secretary of the Appalachian Mountain Club from 1888 to 1893, and last summer served as its delegate at the camp of the Canadian Alpine Club. A large

number of views was shown, those of Mount Vice-President, Emerald Lake, Takakkaw Falls, Lakes Louise and Agnes, Mount Victoria, and the Ten Peaks being especially interesting. The speaker closed with an account of an ascent of Sir Donald in the Selkirks.

April 24, 1908. — Special Meeting, held in Huntington Hall.

President Jones in the chair.

The audience numbered about five hundred.

Professor Charles E. Fay spoke on "The Conquest of Mount Ruwenzori, Equatorial Africa, by the Duke of the Abruzzi." The speaker introduced his lecture by a short account of the work of the Prince, and characterized him as the greatest living explorer. He commenced climbing in the Alps at the age of nineteen, and many of his ascents were of the most difficult character. Views were shown of numerous peaks which he climbed and the routes were pointed out. Mention was made of his Arctic record, and then followed an account of his conquest of Mount St. Elias.

The larger part of the evening was devoted to his trip in equatorial Africa and exploration of the Ruwenzori range. A profusion of views was shown illustrating the route, the trees, the flowers, natives, and the peaks and glaciers. After the close of the lecture a fine series of views taken in the Himalayas was shown for the benefit of those present who had failed to see them at a previous meeting.

The illustrations were the work of Signor Sella, who accompanied the Prince on these trips. They are among the finest specimens of photographic art which the world possesses, and certainly illustrate the grandest mountain scenery known to man.

April 29, 1908. — Special Meeting, held in Huntington Hall.

President Jones in the chair.

About seven hundred and twenty-five persons were present.

Mr. Herbert W. Gleason gave an illustrated lecture entitled "A Summer among the Sierras in California." On his way to the Coast the speaker visited the Grand Canyon of Arizona, and he introduced his lecture by exhibiting several colored moving panoramas which most effectively illustrated its grand scenery. The larger part of the evening was devoted to an account of the outing of the Sierra Club to the Yosemite National Park in 1907, led by the President, John Muir. The main camp was located at the foot of Glacier Point Cliff and a higher one in the Tuolumne region. The peaks, cliffs, and cascades were illustrated, and also the rare and beautiful flowers which grow so profusely in the valley and upon the high peaks of the Sierras. An ascent of Mount Lyell and a visit to the Mono Lake region were included, and also Mount Shasta, Lake Tahoe, King's River Canyon, a Sequoia forest, Catalina Island, and a sunset in the Pacific Ocean. The colored lantern views, made by Mr. and Mrs. Gleason, were specimens of the highest photographic art.

May 6, 1908. — Two hundred and seventy-third Corporate Meeting, held in Huntington Hall.

President Jones in the chair.

Three hundred and thirty-five persons were present.

Mr. Allen Chamberlain, Councillor of Exploration and Forestry, offered the following motion : —

Voted : That the President is hereby authorized to appoint a committee of five members, the President to be one of the number and to act as Chairman, for the purpose of drafting a suitable memorial to the President of the United States and to the White House Conference on the Conservation of Natural Resources, urging the importance of regarding all notable scenic features of the country as natural resources worthy of protection as national assets.

An amendment was offered that the matter be referred to the Council of the Club with the general approval of the meeting. The amendment was lost and the motion carried. The committee was appointed as follows : With the President of the Club, ex-Presidents William H. Niles, Harvey N. Shepard, John Ritchie, Jr., and Allen Chamberlain.

Mr. Theodore S. Solomons, a member of both the Appalachian and Sierra Clubs, addressed the meeting on "Arctic Alaska ; Surface Characters on Land and Water." The region described, the coastal plain of northern Alaska, was that of the tundras, far to the north of the high mountains. The distinguishing features are the "niggerheads," big warts of turf and sod covering an accumulation of "mud, silt, ice, and gravel." A cross section cut by the ocean reveals the character of the whole formation. A vivid account was given of the difficulties met in travelling across the Seward Peninsula in summer, and of the great snowdrifts and masses of ice in winter. No illustrations were shown, but the speaker's descriptions were effective word-pictures of marked literary value.

Mrs. Charles Schäffer then gave a paper entitled "The Tributaries of the Saskatchewan and Athabasca Rivers," illustrated with colored slides from her own photographs. With one lady companion, efficient guides, and ten pack-horses, the speaker made an unusual expedition, supplementing and correcting the former explorations of Habel, Collie, and Coleman. Four months were spent and eight hundred miles covered. The views of the mountains and flowers, photographed and tinted by the speaker, were very beautiful, and very bright and interesting was her account of the many incidents of the trip.

May 13, 1908. — Special Meeting, held in Huntington Hall.

President Jones in the chair.

The audience numbered about five hundred and fifty.

Miss Cora Stanwood Cobb, the Club's Councillor of Art, gave an illustrated lecture entitled "A Tour through Sicily." The speaker first threw

upon the screen a map of Sicily, upon which she traced her route, carrying the traveller from Palermo to Segesta and through Castelvetro to Selinus and back to Palermo ; then through Solunto to Girgenti and through Castrogiovanni to Syracuse. From this city the route was continued through Catania to Taormina, and finally through Messina around the northern coast to Palermo again. The lecture was marked by a wealth of historical and mythological allusion and a profusion of photographs. Especially interesting were the descriptions of the ruins of Segesta and Selinus, and of the scenery of the interior hill-town Castrogiovanni, of Taormina, and of the snow-capped Mount Etna, 10,084 feet above the Mediterranean.

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